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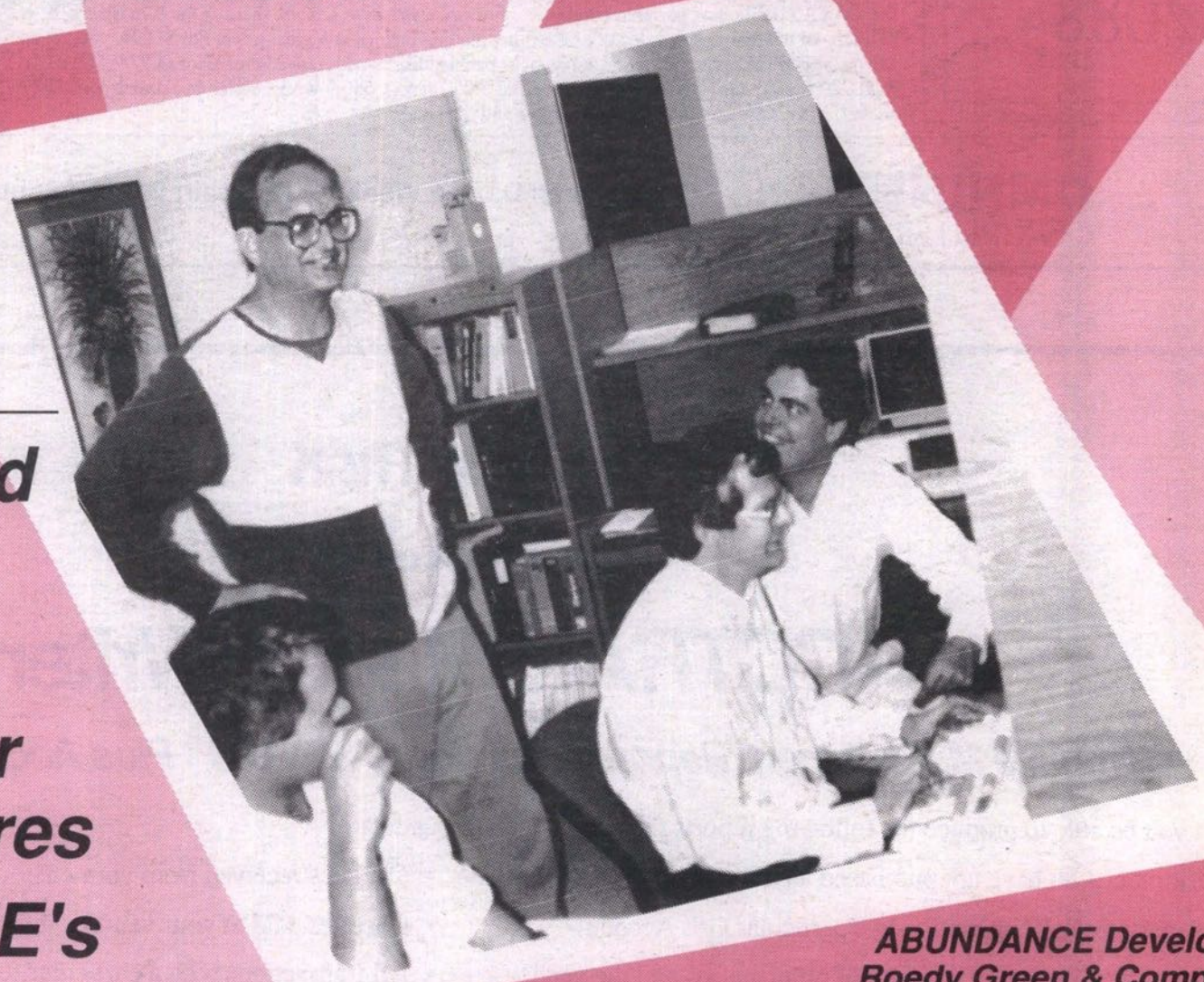

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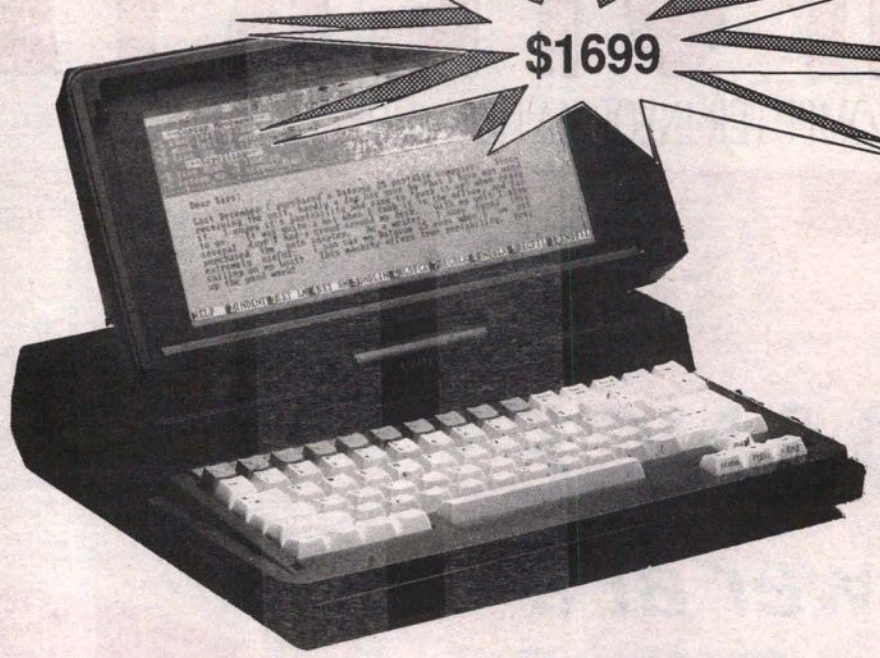


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# The COMPUTER PAPER

BRITISH COLUMBIA'S COMPUTER INFORMATION SOURCE

Vol 1. No. 5 June 1988


## MASTHEAD


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## FROM THE EDITOR

Databases are our theme this issue. The big issues on the national scene are about what will happen to the new Dbase IV, SQL and issues of multi-user databases. On a more local level, we take a look at Canadian Mind Products and their shareware database language: Abundance. An interesting product from the interesting mind of developer Roedy Green. Check out the article for more.

Hypercard development does not seem to have gotten the same response locally that it has had in the U.S. We went looking for samples of locally developed commercial stacks to little avail. The one product we had seen advertised on The Bible gets a not-in-service response from the telphone company. If anyone knows of any stacks please let us know. We do however have in our midst author Barry Shell who has written two books on Hypercard: Concise Guide to HyperTalk" and "Running HyperCard with HyperTalk". Barry has been well known in the Macintosh community since he won Microsoft's Excel Macro competition a couple of years ago. Here he gives us an overview of Hypercard's potential.

We talked with Eric Venot at CONNECT about the interesting potential of Minitel type installations for specific business solutions. The idea would be to set up on-line databases with a more "user friendly" front end, provided by the teletex style graphics. Rather than facing an endless set of line by line characters in one size of small type, the users gets to see graphics and different typefaces. This product offers a very cost effective answer for certain applications. Eric and his partner Philip Pradel of Pradel Information Systems have some very workable ideas to offer businesses.

INFOSAVE a Vancouver company offers an alternative to do-it-yourself back-up. They come in and do it for you for a fee. This frees you from data loss worries. Ideal for the business with large amounts of valuable data. They store the back-ups offsite in the event of fire, theft or other damage. Another great service company to emerge out of the growing local computer industry.

Our old pal, Dave Allen is back with another burst of Amiga fervour. The man loves his machine, and he loves this locally developed database called DynaBase. Apparently he is not the only one who loves the Amiga. Check the Newsbytes section for details on the sales growth of the Amiga.

Peter Turner from Optical Storage Systems managed to make it in just in time with an interesting perspective on the database AskSam. Peter's expertise is in both databases and in CD-ROM applications. He views AskSam from this perspective and deems it to come up short for his purposes.

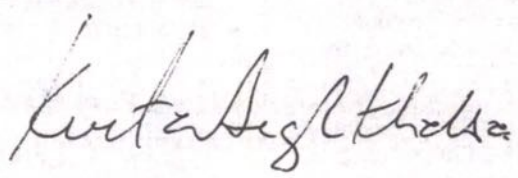
Ingrid Harris gives us an article this time on the subject of Ergonomics, a word that has been misused almost as often as "Natural". She applies her thorough approach to an examination of the issues and discussion with some local experts on the topic.

Mike Wolfe is back with another installment of the continuing saga of the LAN. Gord Simmonds looks at a powerful shareware database called File Express.

Some interesting new products came across our desk this time. See the New Products section for details.

We continue to grow. My thanks again to Desmond Phillips from McKay Institute for his graphic wizardry in sprucing up the look of the paper.

The response we get from you, our readers makes the long hours of production worth while. We have past our breakeven point earlier than we had projected, so we will definitely be keeping the information flowing to you. Tell our advertisers where you saw them. Until next issue...



**Kirtan Singh Khalsa**
**Editor/ Publisher**

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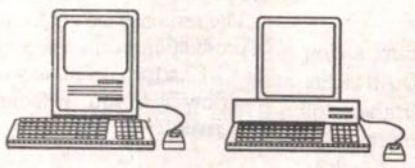

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# TO THE EDITOR

Dear TCP

As we are planning to move from San Diego back to Vancouver, I asked my daughter ( a Vancouver resident) to mail me any computer and or business periodicals that she could find up thataway. To my delight back came a "Computer paper". The paper is surprisingly sophisticated especially considering it's youth. From first hand observation of a San Diego free paper, the "Byte Buyer", now called "ComputerEdge", I would like to inform your readers and advertisers of the impact that a local paper can have. Retail over the counter prices in San Diego, rival nationwide mail order discount prices, stores that give good service are mentioned. Stores that give poor service, although not mentioned directly soon become known by inference. Companies with knowledgeable personnel soon become sought after as suppliers and consultants. Software that is produced locally to fill a local need may be given a forum and a much needed boost. Public domain software may be discussed and programs published, the glossy magazines have much too high a space premium for this sort of informative material. It would be very easy to write reams (or should I say disks) on the advantages that a local paper/magazine can bring to an area. BBS become known, each for it's own area of interest. Questions on technique can be answered, tips and solutions to problems can be made public. Used equipment can be advertised at reasonable rates. All of the above has happened in San Diego as a direct result of the local support for a paper whose aims are very similar to those of your paper.

We are really looking forward to returning home to Vancouver after an absence of eight years, we are very interested to see what has happened to the computer game compared to that of San Diego. It seems that there are many more computer courses offered at BCIT alone, than at all the schools combined here. That should make for very exciting growth in the use of personal computers.

I hope that we can find a niche in Vancouver's computing community. The biggest thrill in my business life, is to introduce companies and individuals to the advantages of computing. Watching an individual discover the power of the business spread sheet, and the ease of word processing is really exciting. Seeing a construction estimator double his daily output after just a few hours instruction is another one of the daily pleasures that makes it all worth while. I digress, a sure sign of my advancing years. The purpose of this letter is to encourage you as a computer person to support your paper, and to support the businesses that advertise in it, you will be amazed at the change that will come about in Vancouver as a direct result, within an amazingly short time.

Sincerely,
Tony Aldridge.

*Thank you for your kind words of support. It is true that our advertisers are some of the best people to deal with in the city. Keep up your support for them and tell them that you saw their ad in The Computer Paper. It gives them a secure feeling that their advertising dollars are working and then they buy more ads, and we can cover more areas. Ultimately you, gentle reader get the benefit.-KSK*

Dear Computer Paper,

We read and enjoy your publication, one correction however. In your last issue, you suggested to a reader that the Vancouver Public Library lacks current periodicals in the computer areas. In fact we carry over 50 computer related publications in the downtown branch. Your oversight may be due to the fact that they are not in open circulation with the other magazines, but must be requested. Kindly inform your readers of this resource.

Reference Section Vancouver Public Library

*We stand corrected.*

Dear Computer Paper

I love your publication, but when are you going to do a comprehensive BBS list?

Signed Anxious to Telecommunicate

*Dear Anxious*

*Soon, soon, it is in the works. For those already doing some telecommunicating, a number of BBS's in the city include a current BBS list in their file sections. Check out some of the BBS's listed in our classified section.*

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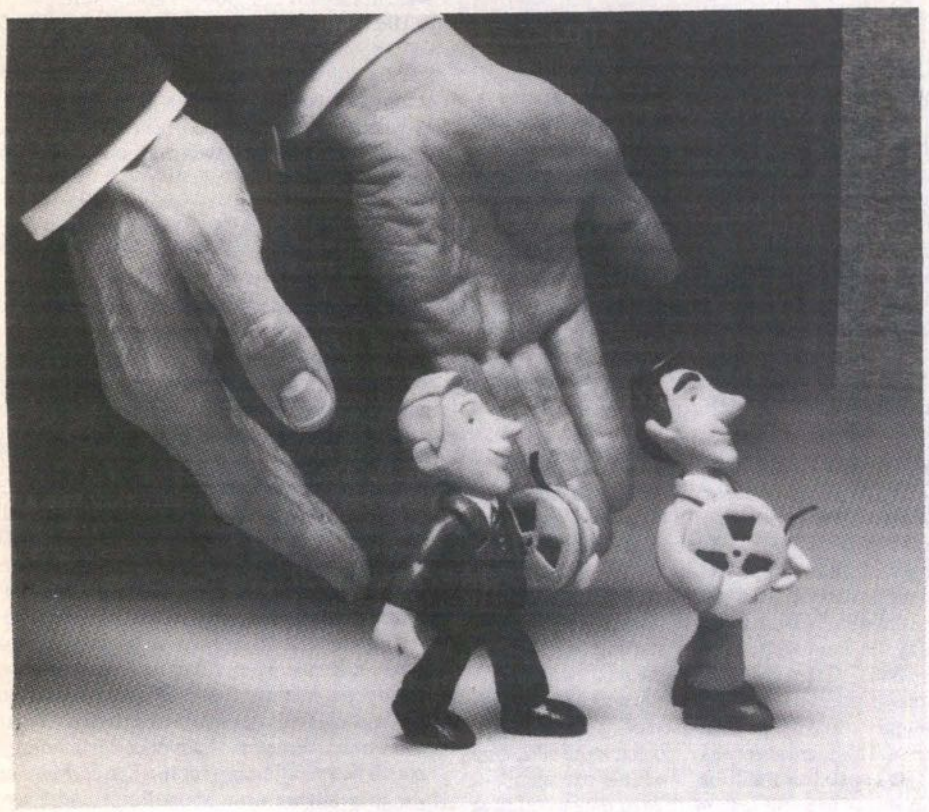

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# NEWSBYTES

## ATARI

### Atari Makes Fortune 500 List

500 LIST SUNNYVALE, Ca. (NB) — Atari reports a 63% drop in earnings for its most recent quarter and points the finger at its recently-acquired Federated Group stores. Despite the loss, Atari, for the first time, has ranked as one of the 500 largest corporations, making slot #484 based on 1987 sales. The balance sheet shows Atari is making money in its computer division, and revenues are $169.2 million compared to $65.1 this time last year.

### New Atari Software at Comdex

ATLANTA (NB) — Atari is clearly making money with its ST computer, despite a distinct lack of interest from the mainstream trade press. Some of the software available for the ST has a kludgy reputation, but many packages cost under $100. Unlike the Amiga folks, the Atari folks had some new stuff to show at Comdex.

One new Atari ST program shown here was WordUp from Neocept, Thousand Oaks, CA. For $80, you get page layout features normally found in high-end desktop publishing packages. It comes with a $35 program called Fontz, with which you can convert Amiga and Apple fonts for use with the ST.

## CD-ROM

### Whole Earth HyperCard?

BRODERBUND, San Rafael, Ca., will market the CD-ROM version of "The Whole Earth Catalog" for the Macintosh. Called The Electronic Whole Earth Catalog, the program will be released in the fall. Designed to be used with HyperCard, the disk does not have an announced price.

### Maxor Scoops Tandy: Erasable CD-ROM

SAN JOSE, Ca. (NB) — Maxtor should beat Tandy Corporation to market with the first erasable optical disk drive this September. The $2,500 Tahiti I drive, scheduled to be sold to computer manufacturers and resellers, not end-users, will store 1 gigabyte of data on each removable 5.25" disk, and is promised to have an access time of only 30 thousandths of a second. That's three times faster than existing optical disk drives. The speed, obtained by employing a lightweight drive head, also makes the Tahiti drive competitive with the access time of today's hard drives.

A slower, smaller version of this drive, called the Fiji I, will also be available. The 3.5" drive's access speed has been clocked at 100 milliseconds. Each disk stores 160 megabytes of information. This unit will be priced at less than $1,000. Maxtor has already made its mark in the industry by selling conventional magnetic drives. Analysts are generally impressed with this newest drive and its technology and believe if Maxtor can deliver on its promises, the firm may get a full year's jump on competitors' products.

### Tandy Fibs on CD-ROM Announcement

FORT WORTH, TX (NB) — Tandy Corp. came in for harsh criticism the week of April 25 as reporters and analysts learned it misled the press and public about its erasable Compact Disc (CD) technology, THOR-CD. Among the April 21 statements that didn't hold up to scrutiny:

-Tandy said it developed a new, unique technology on its own at its Santa Clara labs. In fact, "Business Week" reported May 9, and Tandy confirmed, that the company licensed most of its technology from Optical Data Inc., a well-known (by analysts) start-up in Beaverton, OR which also licensed its technology to, among others, N.V. Philips.

-Tandy press releases said its new technology involved putting "pits" on a CD. In fact, the ODI technology Tandy is using makes and erases "bumps" on the CD surface — a crucial distinction which obscured the ODI connection for a time.

-Tandy implied in its hand-outs that its technology was ready to leave the lab, but press spokesman Ed Juge quickly admitted under questioning it's 18-24 months from commercialization. "That's a lifetime in this business," according to analysts interviewed by NEWSBYTES.

-Tandy trumpeted a $500 list price for its erasable CD player, a price similar to that of magnetic hard disks, and within the budgets of home users. In fact, a version of the product for use with PCs would have to be priced at $1,200, because finer error-correction is needed. (CD-ROM drives have the same problem.)

-Tandy has yet to license the basic CD audio technology from Sony and Philips. You can't make a CD anything without this standard technology.

The Dataquest research firm sent clients a bulletin about THOR-CD and later had to send out out a second bulletin saying, in effect, "never mind."

## CHIPS

### Chip Shortage Pushes Up Prices

MOUNTAIN VIEW, Ca. (NB) — Sun Microsystems is the latest to announce price hikes that reflect increasing charges for DRAM chips. Sun says it has upped many add-on memory products by 39% to 50%. An extra megabit of memory for a Sun 4-200 computer, for instance, is now $780 from $563. "We've held off as long as we reasonably can," reports Greg Xenakis of Sun.

Apple Computer hiked an add-on memory kit for the SE by 40% earlier this month; Wyse has hiked computer prices by 6% to account for its higher chip costs. And the worst isn't over yet. The rumor mill has it that DRAM chip prices will rise another 30% by July.

### Microsoft Excited About 586

— While most of us are wondering what the Intel 80386 chip means to us, Bill Gates and his associates at Microsoft are two generations ahead, working with Intel Corp. on the design of the 80586 microprocessor. "We're already finished our work on the 486," Gates told a conference in Toronto May 19, "and we're already starting our work on the 586." Gates said each of the next two generations of Intel chips — the 486 and 586 — will roughly triple the performance of its predecessor. He said his team is very excited about the 586. One of its capabilities will be "multiple dispatch" — the ability to execute more than one instruction at a time.

Gates also said that MS-DOS will continue to outsell OS/2 for the next two to four years, and that Microsoft plans yearly enhancements to the older operating system, including a menu-and- icon shell similar to Windows and OS/2's Presentation Manager.

### Chip Shortage to Cause More Problems

SAN JOSE, Ca. (NB) — The shortage of RAM chips will cause a slow down in the entire computer industry and will persist through 1988, says Dataquest, a market research firm. Shortages of 256K and 1 megabit dynamic random access memory chips will finally ease by mid-1989, according to Manny Fernandez, president and CEO of Dataquest, but until then, the shortage "could have a significant impact on the growth of the computer industry in the coming year. Dataquest's findings are much tamer than those issued by the Semiconductor Industry Association, which says worldwide chip sales will grow only 3.9 percent in 1989, a sharp contrast with the 30.1% growth expected to be seen this year. The SIA forecast hints that a dreaded "r-e-c-e-s-s-i-o-n" may be headed our way after the new year starts, at least where the semiconductor industry is concerned.

## COMMODORE

### Amiga Color Seperation System

TORONTO (NB) — Commodore Business Machines Ltd. showed a color separation system running on its Amiga 2000 personal computer at the Comgraph '88 show here May 17-19. Commodore says the Professional Color module of its Professional Page desktop publishing software is the first full-featured program to create and output type and photography as black and white halftones, mechanically separated film or screened, four-color process separations.

### Amiga Making Money for Commodore

WEST CHESTER, Pa. (NB) — With solid sales of its Amiga computer, Commodore International Ltd. showed a third quarter profit of $9 million (28 cents per share) on sales of $200 million. For the third quarter last year, Commodore had a $1 million profit (3 cents per share) and $170 million in sales. Irving Gould, Commodore chairman and chief executive officer, said, "We are pleased with the strong performance of the Amiga product line, which accounted for approximately 45 percent of revenue in the current quarter. Commodore's line of PC-compatible computers also experienced good growth in the quarter."

### Hardware & Software Deals For Schools

TORONTO (NB) — Commodore Business Machines Ltd. has announced Project Software, a new marketing program that will give Canadian schools evaluation copies of Amiga software at 75 to 100 per cent off list price. Announced at the annual Education Computing Organization of Ontario (ECOO) conference in Toronto, Project Software contains more than 100 educational software titles with a total value of more than C$10,000, Commodore says. When a school board buys three to 50 Amiga 500 computers, Commodore will sell the board a complete Project Software library for C$2,500. With the purchase of 51 to 100 Amiga 500s, the library will cost C$1,500, and a board that buys more than 100 machines will get the software library free. The new program complements Commodore's Three For Two plan, in which publicly funded schools get one free Amiga 500 for every two they buy. (416) 499-4292,

## DTP & GRAPHICS

### New Graphics Standard Promoted

SAN RAFAEL, Ca. (NB) — Pixar has published an interface proposal which it promises will make "photorealism a standard capability" on desktop computers. It's called RenderMan and it defines a methodology for 3-D modeling systems to attach visual attributes to geometric data in such a way as to simulate material, texture, reflectivity, and gloss. Pixar wants the industry to adopt the technology, and it's off to a good start. 19 firms, including Autodesk, Sun Microsystems, NeXT, MIPS, Apollo, Prime, and Walt Disney, have endorsed RenderMan and have committed to using the interface in their products. None, however, chose the introduction to announce specific products based on RenderMan. "Just as PostScript fueled desktop publishing, the 3-D scene- description interface will fuel photorealistic imaging," claimed Tom Porter, director of advanced technology at Pixar. The specification for the RenderMan interface is available now from Pixar and may be obtained free of charge by contacting the company. Pixar is largely owned by Apple co-founder Steve Jobs. CONTACT: PIXAR, 415/258-8100

**PC Pagemaker 3.0 Ships** Seattle, Wa., is shipping version 3.0 of PageMaker for the PC. The new version includes support for long documents, enhanced graphic capabilities, and user interface improvements, including built-in templates.

### Laser Friendly Cuts Price

TORONTO (NB) — Laser Friendly Inc. has cut the price of its desktop publishing software package, The Office Publisher, from C$1,395 to C$695. The company says that halving the price of The Office Publisher makes it the lowest-priced full-featured desktop publishing software available for MS-DOS computers. "The newly reduced price reflects our awareness that the average customer may only utilize certain portions of the software depending on their specific publishing application," Gordon Schofield, director of sales and marketing, said in a prepared announcement. "With a list price of $695, we are much more attractive to new users and companies working with limited DTP budgets." The Office Publisher is available in Canada through ComputerLand outlets and from J.B. Marketing Inc., Cornwall, Ont. CONTACT: LASER FRIENDLY INC (416) 291-3736

## GENERAL

### Protection for VDT Workers

HAUPPAUGE, N.Y. (NB) — The Suffolk County legislature has passed a law, believed to be the first in the U.S., to protect workers in private businesses who stare at video screens all day. The ordinance takes effect in November and covers all businesses with 20 or more VDTs, and employees who work more than 26 hours per week in front of the screen. The law requires a 15-minute break after three hours of work. It also sets standards for lighting and for chairs, and mandates that employers pay 80 percent of the cost of eye exams and glasses. The bill won approval by a 13-2 margin, following a three-hour public hearing. A business organization, the Long Island Association, opposed the measure, arguing that the cost would make them uncompetitive with businesses located elsewhere.

### IBM Donates Million Dollar Computer

SAN JOSE, Ca. (NB) — San Jose State University

*NEWSBYTES by Wendy Woods (Western USA), Ken Maize (Eastern USA), Dana Blankenhorn (South & Midwest USA), Masayuki Miyazawa and Keizo Yammamoto (Japan), Grant Buckler (Canada), Steve Gold (UK) and Peter Vekinis (Europe)* *Copyright © 1988 NEWSBYTES* *NEWSBYTES Canadian bureau chief is Grant Buckler, Source ID IP2008, PC Canada ID PC1176, voice (416) 285-0644, or 859 Kennedy Rd., #203, Scarborough, Ontario, Canada M1K 2E3.*

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# New Headache for Canada's Chartered Banks

## Spells Relief for Canadian Business

The Accounting Master Payroll Program may spell the end of the chartered banks domination of the payoll processing market for many small and medium sized businesses. Now business owners can complete their own payroll in house, and save a bundle on bank charges and interest.

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The company's money can earn interest for the company *not* the bank. Again, providing big savings for the small to medium sized business particularly if a large overdraft is involved.

Accounting Master Inc., of Suite 163-2619 Alma St, Vancouver has introduced the definitive payroll program for the IBM and compatible computers. This easy to use program does it all for you. T4's, employee separation reports, journals, cheques, pay advices, and detailed job costing are just some of the reports it handles. It even exports directly to ACCPAC™ general ledger, but saves the complex set up time often associated with ACCPAC's own payroll program.

Until now payroll software for personal computers has been either too simple to handle more than the most straight forward situations, or too big and expensive to set up. Accounting Master promises to be the best solution possible, it is easy to learn and inexpensive to buy and maintain.

The manual documentation does an excellent job of bringing the user quickly up to speed on everything needed to run a payroll. You probably will never need it, but it is nice to know that free support is always just a phone call away.

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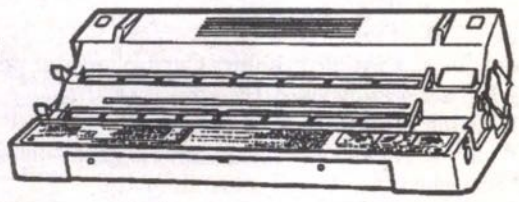

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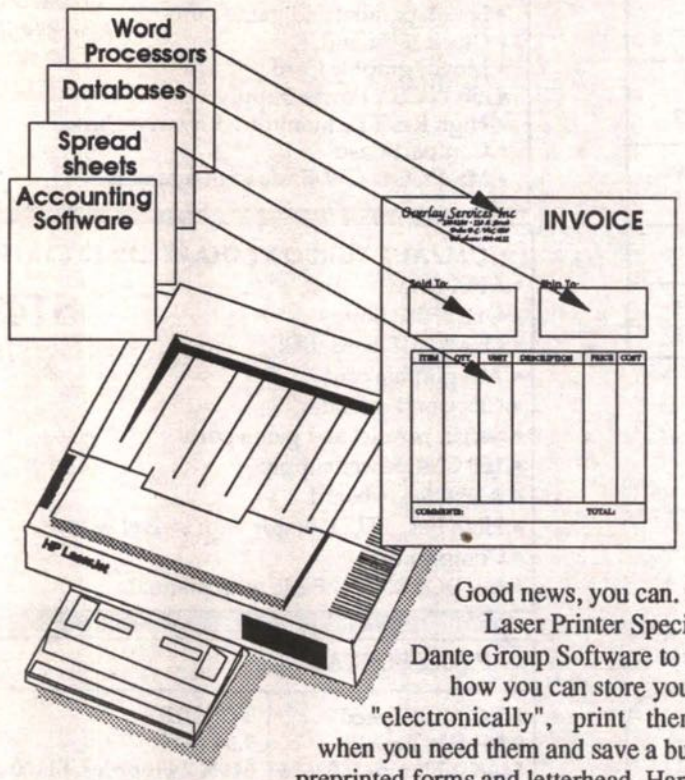


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has just received a $1 million donation of computer equipment from IBM. The 3081 mainframe computer, workstations, and software, will be used by the school's engineering department to link 290 terminals.

The gift is part of an ongoing effort by IBM to nurture San Jose's budding pin-stripers at the academic level. The corporation has already donated equipment and one staff member to San Jose State where more graduating engineers reportedly end up in Silicon Valley computer firms than from any other school in the Bay Area.

(How about one for BCIT?-ed)

### Packard Gives Away $2 Billion Dollars

LOS ALTOS, Ca. (NB) — David Packard, who along with William Hewlett began Hewlett Packard 49 years ago, may be rich (he's ranked as the fourth wealthiest man in America) but he's no slouch when it comes to sharing his riches with those in need. But his latest gift has the heads of even the most liberal turning. Packard has decided to give away $2 billion of his estimated $2.87 billion wealth to the Packard Foundation, an organization he set up with his late wife Lucile to distribute funds to charitable causes. Packard told the NEW YORK TIMES, "We decided early on this was what we wanted and worked 25 years to get to the point where we can do it."

Much of the grants are expected to go to causes which help children. $40 million of the money will help build a new children's hospital at Stanford University. Schools throughout the San Francisco Bay Area will receive grants, so will science and engineering students who need funding for research. Additionally, money has been earmarked for a program that helps prevent teenage pregnancy and one that provides family planning services to Third World countries.

Previously, the Packard Foundation has given away an estimated $10 million a year. The Monterey Bay Aquarium, a public educational and research facility, was not built with Packard Foundation money but with a personal grant from Packard to his daughter Julie, who now heads the institute.

### Star Wars Unworkable: Lacks Software

WASHINGTON (NB) — The Office of Technology Assessment, a congressional research arm, says the president's "strategic defense initiative," dubbed "Star Wars" by the press, would fail the first — and only — time it was called on. The reason? The computer software necessary to target all the incoming missiles isn't anywhere in sight. The targeting and control software, said OTA, cannot "be produced in the foreseeable future." The 900- page OTA report has not been officially released, but a copy of parts of it leaked to the WASHINGTON POST. The Pentagon was furious at the leak and gave the OTA staff a severe tongue- lashing, a highly-placed OTA official who requested anonymity told NEWSBYTES.

## JAPAN

### Over 400,000 Expected to Japan's Big Show

TOKYO (NB) — The theme of this year's 66th Business Show was "The Intelligent Office - More Effective and Comfortable Working Space" International Trade Fair Grounds, Harumi, Tokyo on May 18. Over 400,000 visitors were expected, both domestic and foreign, during the 4-day exhibition. Some 295 companies displayed their latest products and occupied 29,600 square meters of floor space — the largest scale in the show's history.

The biggest crowds were attracted to IBM's exhibit where the OS/2 operating system was being promoted. "IBM OS/2 Theater" showed the development and features of the Personal System/55 Model 5550-S/T, Model 5570-T, and OS/2 Extended Version. Observers remarked that the depth of development information was unusual for IBM.

IBM's New Products Corner was flooded with its 32-bit MPU-based Personal System/55 Model 5550-S/T, and Model 5570-T. IBM's laptop computer, the PS/55 Model 5535, was exhibited at its Laptop Plaza, demonstrating that it can run Japanese word processing software Ichitaro and Lotus 1-2-3.

Meanwhile NEC was exhibiting and demonstrating its defacto standard Japanese PCs, the PC-9800 and the PC-8800 series. Japan's PC giant played host to third party product displays as well. Sony exhibited its UNIX-based engineering workstation the NEWS, occupying most of its exhibition space. The newly-created NEWS 1800 series have two 68030 MPUs.

### 5th Generation Computer Due in 3 Years

TOKYO (NB) — The Ministry of International Trade and Industry (MITI) has just endorsed a project to develop a fifth generation computer. MITI will invest about 30 billion yen ($ 240 million) from 1989 through 1992 for the project and the Institute for New Generation Computer Technology (ICOT) will develop the prototype machine. The system will be capable of parallel processing of data and will connect a staggering 1,000 central processing units (CPU). It is expected that such a machine will be able to process a whopping 500 times more data than present large-scale general purpose computers. MITI even claims this fifth generation machine will be the first to understand and infer human voice — and such a prototype will be complete in three years.

Meanwhile, MITI will provide free access to all copyrights and licences acquired in the development of this prototype machine to companies at home and abroad. In this way, MITI aims to acquire international participation in this project. CONTACT: Institute for New Generation Computer Technology, Mita Kokusai Bldg. 2F., 1-4-28 Mita, Minato-ku, Tokyo 108

### Computer Speaks and Reads Japanese

TOKYO (NB) — Tokyo-based heavy electric machinery manufacturer Meidensha has developed a revolutionary new sound synthesis system that reads Japanese documents written by computers and word processors. Further, the technology is said to be capable of interpreting the meaning and context of a statement, thereby adjusting inflection. The sound synthesis system consists of Japanese language processor and sound generator. The system is processed as follows: The Japanese language processor converts disk-based text documents into sound code, the sound generator processes the code into voice-like sound, using microprocessors. Finally, the system reads the sound through speakers. Meanwhile, its makers say the system can be adapted to other languages, since the phonemes, or basic units of human speech, are similar for most languages, and simply have to be rearranged for the system to work. CONTACT: Meidensha, 2-2-1 Otemachi, Chiyoda-ku, Tokyo 100

## LANS

### Canadian Business Confused by LANs

TORONTO (NB) — Personal computers are used in nearly 90 per cent of large Canadian businesses, 70 per cent of medium-sized ones and only about 40 per cent of small businesses, according to a recent study by International Data Corp. Canada. IDC also found, in a separate survey, that businesses are confused about local- area networks. Conflicting vendor claims and the absence of clear standards are the big problems, IDC said. IDC found that more than one third of businesses surveyed could not identify the vendor that had supplied their network interface cards. Among those that knew whose cards they had, IBM and Novell were the most popular vendors. In the personal computing survey, the researchers found that the IBM PC-XT was more widely used than its smaller and larger siblings, the PC and PC-AT. More than 40 per cent of large sites surveyed are already using PS/2 machines, and fewer than one fifth of the large organizations that responded to IDC's survey were using IBM-compatible PCs. In smaller organizations, the PS/2 was slightly less popular and compatibles more so. CONTACT: INTERNATIONAL DATA CORP. CANADA, 7 King St. E., Toronto, ON M5C 1A2, (416) 369-0033

### New Novell Hardware

OREM, UT (NB) — Novell found its major Comdex/Spring announcements lost in the hubbub and the boredom. The company, which bought a number of hardware firms in the last few years and got indigestion, announced a new AT-type terminal with a built-in Ethernet adapter, along with a diskless workstation. Also added were a file server based on the 80386 chip with a 155 megabyte capacity and a power supply that can handle even bigger drives. A SCSI hard disk controller for the PS/2 was also announced, and the company announced its Advanced Netware, Version 2.11 will ship May 27. Support for OS/2 will be available in the fourth quarter.

**NETLINE**, Provo, UT, introduced a networking system which uses power lines called Link. With it, any set of PCs in a building can now be linked through a serial port plugged into a wall outlet. Prices are $5-600 per PC, and it ships in June.

## MACINTOSH

### MS Chalks Up First Win Against Apple

SAN JOSE, Ca. (NB) — Microsoft has been granted a request to separate the suit filed against

it by Apple Computer into two separate pieces — one a licensing, the other the notorious "look and feel" dispute. Microsoft attorneys claim that the licensing dispute, in which Apple has charged Microsoft with going beyond the bounds of a 1985 agreement to use copyrighted elements of the Macintosh display, is the key to the entire case, and if settled in Microsoft's favor, the entire suit is settled. The U.S. district judge hearing the case has predicted a trial on the licensing issue could come as early as October.

The second half of the suit, whether Microsoft and Hewlett Packard are violating Apple's visual copyrights, may not reach a trial stage until late 1989, at best, say those close to the case, and then only if the licensing dispute is settled in Apple's favor.

While Microsoft attorneys and spokesmen applauded the judge's ruling, an Apple spokeswoman merely agreed with it, saying that if it will move the case forward, "that is exactly what we are looking for."

### McCRAY

YARC Systems, Thousand Oaks, Ca., is shipping a board which dramatically increases the processing speed of a Macintosh II. The McCRAY board, $4,295, enables the Mac II to run at a whopping 50 MHz and to process 17 million instructions per second.

### AutoCad for the Mac II

SAUSALITO, Ca. (NB) — In a move viewed as placing the Macintosh where no Mac has gone before, Autodesk has announced a version of its highly successful computer aided design program for the Macintosh II.

Expected to win friends for the Macintosh in previously closed MS-DOS and UNIX engineering circles, the program, called AutoCAD Release 10, provides 3-D wire frame construction and surface modelling functions, and will exchange files with MS-DOS and UNIX machines also running AutoCAD. Engineers and draftsmen have overwhelmingly chosen the Autodesk CAD package over the years, bringing it to a number one position for sales of this type of software. The software is priced at $3000 and is expected to be available by this fall.

**Hyperbole of the Week**

"More people have written programs in HyperCard than in any other language." — Apple Fellow Alan Kay, speaking to a Washington, D.C. gathering

## PC NEWS

### IBM Looms Ominous for Clone Makers

NEW YORK (NB) — IBM says its wants companies to pay up on past royalty fees before it will enter into new licensing agreements for PS-2 compatibles. According to company spokesman Michael Starks, Big Blue may also push for retroactive royalty payments even if the clone maker has no plans for PS-2 clones. IBM wants payments of one percent of sales on computer sold through last April 1, and full payment by the end of the year. After that, says IBM ominously, prices could rise.

"To be consistent," says Starks, "we are not going to enter into new patent licensing agreements with companies that refuse to recognize their liability to IBM for the use of IBM patents in their existing products." Unaffected are Tandy and Compaq, which have cross-licensing agreements with IBM. Whether the fact that IBM hasn't dunned the clone makers for payments in the past will undercut the current attempt to collect is unclear, according to computer law specialists. "This one could be headed to court," one lawyer told NEWSBYTES.

### New DOS Due for June

SAN FRANCISCO (NB) — If industry pundits are correct, IBM will release version 3.4 of DOS on June 2 — a DOS with a more visual interface than its predecessors, and which has incorporated extended memory support. In addition, hard disk volumes may now contain up to 512 megabytes of data.

News of a new DOS has caused even more confusion in a market already confused about the benefits of IBM's newest operating system, OS/2. Jeffrey Tarter, editor of "Softletter," comments that "DOS 3.4 sends an interesting signal to the marketplace that we suspect could dramatically affect the transition to OS/2.... Until now, the lack of attention to DOS from both IBM and Microsoft has encouraged most users to regard it as a dead-end....If DOS continues to evolve, we expect that users and developers will increasingly think of DOS and OS/2 as parallel environments."

### Microsoft Expands to Gigantic New Plant

BOTHELL, Wa. (NB) — Microsoft has finally consolidated its production and distribution operations in one plant said to be the size of five side-by-side football fields. The $14 million plant is set to turn out a quarter of a million software packages each month; eventually one million packages a month will be produced, according to company officers. Set to become operational this month, the new plant, just north of Bothell, will initially employ some 170 people.

**Quotes**

"I'm pretty good at multiplication, but I never look at the stock price so I don't know what number to multiply by." — Bill Gates, Microsoft chairman and world's youngest billionaire, when asked his current net worth at a Toronto press conference.

"The sun will burn out in 20 million years, so Lotus may have to finish its 1-2-3 release in the dark." —Marty Winston, Winston & Winston PR

## NEWSBYTES AT COMDEX

**Show Overview** by Dana Blankenhorn

THE NEXT BATTLE for the hearts and fingers of computer users will be between IBM's OS/2 and IBM's Unix operating systems. It will be a friendly battle — both hardware giants are building links between their environments and the competition's. Who will win the desktops of the 1990s? At the Software Horizons conference Monday morning, the consensus was it depends on whose desk you're talking about. Esther Dyson of REL 1.0, a newsletter, Gordon Eubanks of Symantec, a software maker, Enzo Torresi of BusinessLand, a store chain, and David Wagman of Softsel, a distributor, all agreed that among engineers Unix should lead while in the office, OS/2 should win out.

**The Name of the Game at Comdex** is finding nifty new products which will set your store and your customers apart from the competition. This means spending hours walking miles of aisles, weighing yourself down with literature. In early returns one of the niftiest ideas comes from Taiwan, specifically from Diamond Flower International (DFI), Booth 2738 in the West Hall. It's a handheld scanner called the Handy Scanner with a 4-inch wide scan-head, meaning you can run it down a newspaper column and input true stories into your PC. It has two modes, and comes with the $199 Halo DPE (desktop publishing editor) software package. All yours for $500 retail.

**The Bestseller** at this year's Comdex Show is a 400-page tome called "Operating System/2 Application Guide" being given away at the IBM booth. In it, you'll find hundreds of programs which work with OS/2. Some are being demonstrated in a massive booth with IBM's and Microsoft's name in the West Hall. As a piece of dis-information, this is one of the best pieces of work since Richard Nixon's 18-minute gap during Watergate.

Why? For starters, each section has its own cover. That's a page. Then there's a blank page behind it. That page counts, too. Then each program in the book gets its own page. And very few of these programs are in stores now, as the book readily admits. Of the 8 programs noted in the "desktop publishing" section, for instance, 4 won't be available until 1989. Only two will be done by the end of this quarter, in June. And many developers, like Inset Systems and Manhattan Graphics (to take two from the same desktop publishing section) don't know what hardware you'll need on your PS/2 to run them.

Still, IBM people are handing out these books with straight faces, and quoting from them as though they were Holy Writ. When you stop to think about it, this may be the most humorous part of the whole Comdex scene.

### Shareholders Defeat South Africa Ban

RICHMOND, Va. (NB) — International Business Machines Corp. shareholders have rejected a stockholder proposal that would have led the company to stop selling its products in South Africa as long as that nation's apartheid policy is in effect. The South Africa proposal got less than 10 percent of the 400 million shares voted. Shareholders also rejected proposals that would have forced the company to disclose experiments conducted with animals, and to deny health insurance payments for abortions.

## OS/2-PS/2

**COMPAQ**, Houston, told analysts it gained market share during the first quarter and outsold IBM's PS/2 machines with the Micro Channel 2.5-1. They also claimed 58% of the Fortune 1000 has Compaq on their approved vendor lists, and


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showed a Storyboard survey showing it had 26% of computer dealer revenues.

### IBM Road Show Promotes PS/2-OS/2

SAN FRANCISCO (NB) — If there is any doubt that the PS/2 line is the most successful product introduction in the history of the computer industry, consider this — more than 2 million machines, half of them with IBM's new Micro Channel Architecture, have been shipped over the last year, according to IBM. Still, to combat the prevalence of Doubting Thomases, IBM is throwing a 13-city media event hosted by its own Bill Lyons, general manager of IBM Personal System merchandising and other IBM luminaries. The event is designed to dispel rumors and answer questions about the new line.

At the San Francisco showing, IBM promised that a book will be released at Comdex describing some 300 applications now being written in OS/2. Microsoft's Balmer further dispelled rumors that development of applications for OS/2 had been curtailed due to Apple Computer's lawsuit over the "look and feel" of the new IBM operating system. "I see no software developer in any way, shape, or form change their plans one iota as a result of the Apple lawsuit," said Balmer. As for Presentation Manager, the visual interface for OS/2 being developed by Microsoft, is right on track despite the suit, and will be released to the public in "five months and three weeks."

## THE STOCK MARKET

**Dell Computer**, Austin, announced it will go public with 3.5 million shares priced at $8-9.50 per share.

### Sun, Lotus Sales Soar

BOSTON (NB) — Sun Microsystems Inc. of Mountain View, Calif., and Lotus Development Corp. of Cambridge, Mass., are the fastest growing companies in electronics, according to ELECTRONIC BUSINESS magazine. Sun's sales soared 474.4 percent over the past five years, the magazine said, while Lotus grew 369.2 percent over the same period. The rankings only apply to publicly held firms. Others in the top five: AST Research of Irvine, Calif. (249.5 percent growth); Iomega of Roy, Utah (185.2 percent); Mentor Graphics of Beaverton, Ore. (164.1 percent).

### Bedford Announces Public Offering

BURNABY, B.C. (NB) — Bedford Software Ltd. has filed a prospectus for a public stock offering with securities regulators in three Canadian provinces. The offering is underwritten by the Montreal securities firm of Levesque Beaubien, and the prospectus has been filed in British Columbia, Ontario and Nova Scotia. Kristin Keyes, Bedford's director of marketing, said the size and price of the offering have not yet been determined. Proceeds will be used to finance new product development. In fiscal 1987, Bedford earned C$153,000 on revenues of C$1.98 million. In the first nine months of fiscal 1988 (to January 31) the company made a C$455,000 profit on revenues of C$.3.5 million.

### BCE to let Motorola Buy MDI

Montreal, will not buy MDI Mobile Data International Inc. of Richmond, B.C. BCE and Motorola Inc., Schaumburg, Ill., agreed to pursue joint ventures in the mobile radio business, THE GLOBE AND MAIL reports, and BCE will withdraw from bidding for MDI, leaving the field clear for a buyout by Motorola.

### Computer Innovations Distribution Inc.

Brampton, Ont., reported a C$6.5-million profit in the year ended April 2, up from C$3.9 million the previous year. Revenue climbed to C$306.3 million from C$255.6 million.

## TELECOMMUNICATIONS

### Hi-Speed Voice/Data Network Coast to Coast

TORONTO (NB) — Canada Systems Group Ltd., Toronto-based service bureau, says its ValuNet high-speed communications network will reach from coast to coast by the end of this year. ValuNet carries both voice and data communications using a variety of links provided by common carriers. It currently connects Montreal with Toronto and three other Ontario cities: Mississauga, Hamilton and London. By September, CSG says there will be links to Halifax on the east coast, to Vancouver on the west, and to Ottawa, Winnipeg, Calgary and Edmonton.

CONTACT: CANADA SYSTEMS GROUP, 393 University Ave., Toronto, Ont. M5G 2H9, (416) 979-3900

**Bell Canada**, Montreal, has been ordered to cut long-distance rates — again. The Canadian Radio-television and Telecommunications Commission (CRTC) figures Bell is making too much money, so the phone company was told it must reduce rates for long-distance calls from Ontario and Quebec to other parts of Canada by an average of 24.6 per cent. Rates for calls to the United States will fall about 10.3 per cent, and calls within Bell territory will be about 2.8 per cent cheaper.

## UNIX

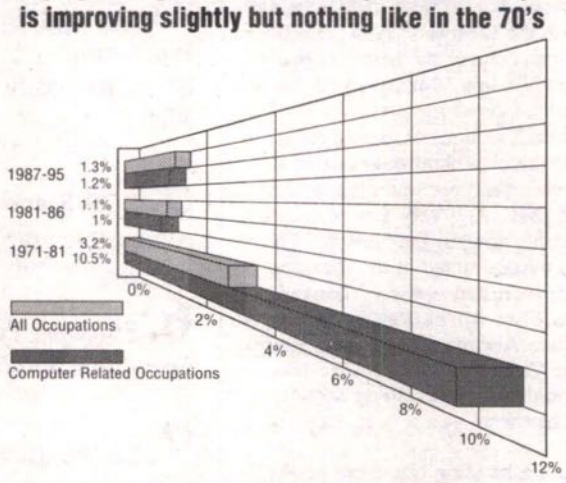
### The UNIX Rebellion

NEW YORK (NB) — Led by giants International Business Machines Corp.and Digital Equipment Corp., the world's two largest computer companies, seven major computer makers have launched a rebellion against American Telephone & Telegraph's recent initiative to revitalize the Unix operating system. Calling themselves the Open Software Foundation, and dedicating $90 million over the next three years to the cause, IBM, DEC, Hewlett-Packard Co., Apollo Computer, Siemens AG and Nixdorf Computer AG of West Germany, and France's Groupe Bull have joined together to build their own flavor of Unix, one that would not be under AT&T control.

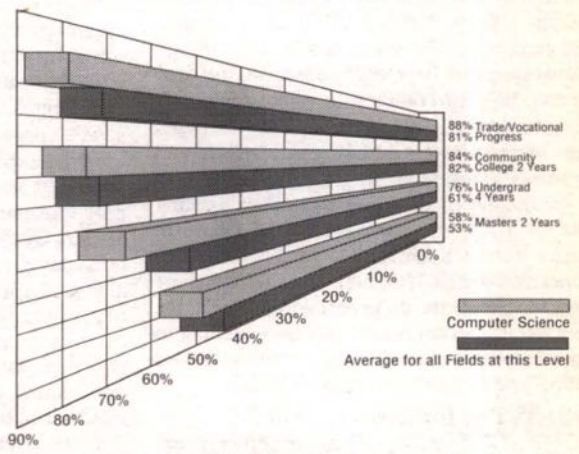
AT&T recently launched a strategic alliance with Sun Microsystems, Xerox, and Motorola for development of a new Unix, complete with a graphical interface, to run on a new generation of reduced instruction set chip (RISC) computers. According to several industry sources, that action really troubled H-P and Apollo, who then worked to bring, as one source put it, the "gorillas in the closet," IBM and DEC, into the Unix rebellion. The foundation of the challenge to AT&T Unix will be AIX, IBM's version of Unix.

## Job Futures: An Occupational Outlook to 1995

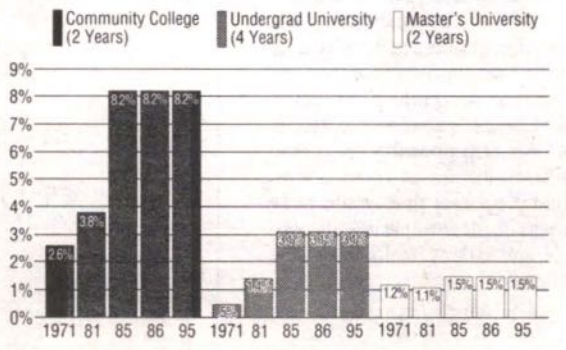
**The projected growth rate in Computer-Related jobs is improving slightly but nothing like in the 70's**



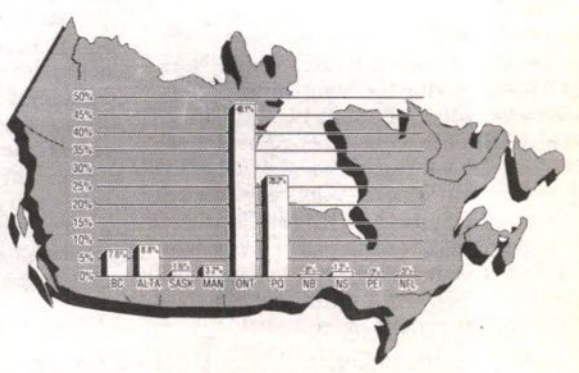

**Computer Science grads get more jobs**




**The proportion of Computer Science grads to other studies has grown, but it projected flat until 1995**




**Where the jobs were in Computer-Related Occupations in 1981**




*Charts by Business Pictures & Words*

Source: Job Futures: An Occupational Outlook to 1995
*Employment & Immigration Canada $9.95*

AT&T reacted scornfully to the new Unix challenge. Robert Kavner, new chairman of AT&T's data systems group, said, "this new group has no track record. We question the process whereby several competitors — most of whom have only developed closed systems — are now going to develop an open operating system." Kavner implied that IBM and DEC are not really interested in openness, but in retarding real Unix, thus keeping their own, non- compatible, operating systems alive. "We may not see an end product out of this group in my lifetime," said Gordon Bridge, AT&T vice president, national sales, who spent 22 years at Big Blue before joining AT&T.

The new foundation hopes to attract additional members, with a $25,000 entry fee for profit-making companies, and $5,000 for non-profits. But one major player won't be joining. Frederick Wang of Wang Laboratories issued a statement after the announcement, saying: "We regard this development as nothing more than an argument among vendors, which will only serve to confuse business and government customers as well as software developers all over the world. The polarized posturing of these companies cannot help the real headway that was being made towards openness in operating systems standards. As such, this is a great pity and a disregard of customer's real interests."

Seeing the disarray in the ranks of the vendor community, Boston attorney Peter Marx says he will try to organize a national coalition of business users, to give users greater clout in the development of new programs and standards. Marx already is counsel for a group of Data General Corp. users, counsel for the Washington-based Information Industry Association, and chairman of the New England Computer Law Forum. "There is no voice now for the users," Marx said. "There are some years of chaos ahead until this issue of a standard operating systems is settled. It's time the users should be united."

**Sun Microsystems** Mountain View, Ca., will sell nearly 900,000 shares — about 2.5% of the common shares — to AT&T in the latest deal to get cozy with the inventor of UNIX and partner in the operating system's next incarnation. The stock purchase is expected to cost AT&T some $40.6 million.

### AT&T Personnel Problems

NEW YORK (NB) — With the death of Chairman James Olson and the decision by Vittorio Cassoni to desert AT&T for Ing. C. Olivetti & Co., the telephone giant is reeling and spreading doubt about whether it will every be able to turn its shaky computer business around. On top of Cassoni's return to Olivetti, where he will be managing director, AT&T and the Italian computer manufacturer are squabbling. AT&T owns a big hunk of Olivetti. Cassoni was the architect of AT&T's strategy of turning the Unix operating system into the software glue that would link many different systems and push AT&T into success in computers.

AT&T has replaced Cassoni, 45, with Robert Kavner, as chief of the data systems group. Kavner has been AT&T's chief financial officer and the data systems job will give him a chance to cut his teeth on company line operations. Kavner says he wants to slide away from manufacturing and toward software. Kavner will probably take Cassoni's place on the board of workstation maker Sun Microsystems, a key company in AT&T's Unix gambit.

## VIRUS WATCH

### Newspaper Struck With "Brain" Virus

PROVIDENCE, R.I. (NB) — Reporters at the "Providence Journal- Bulletin" newspaper got a frightening message as they were using their computers: "Welcome to the Dungeon. Beware of this VIRUS. Contact us for vaccination." Computer experts at the paper located and killed the virus before it got onto the Atex minicomputer system used in the newsroom or the mainframe in the business office, but not before the virus destroyed and damaged scores of PC disks. The newspaper said the virus was the "brain" strain, created by two brothers who run a computer store in Lahore, Pakistan. One of the brothers, identified as Amjad, told the paper that he wrote the program to track his software, fearing that people were pirating it. A brain virus recently was discovered at Bowie State College in Maryland, where it destroyed five student's disks. The newspaper's experts aren't sure how long the virus was at the paper or how it got into the systems. The virus can lay dormant for long periods.

### EPA Macs on the Mend After Viral Attack

WASHINGTON (NB) — Apple Macintosh computers at the Environmental Protection Agency are recovering following a viral attack, according to "Government Computer News." EPA technicians used Virus Rx, a free Apple program, to diagnose and vaccinate the computers. Apple is promoting "safe computing," the digital equivalent of "safe sex," as the ultimate answer to virus attacks. This means backing up data files, write protecting master disks, and not computing with strange programs. Perhaps we can call those little write-protect tabs "compucondoms?"

In the meantime, congressional computer investigators say the virus that infected Macs in the House of Representatives was the "scores" virus. They say that the virus may have migrated to the House Information System computers from computers at NASA. NASA, in turn, picked up the virus at the Johnson Space Flight Center in Houston, where government computers became infected by EDS computers.

### PC Virus Cure From Foundationware

ATLANTA (NB) — One of the biggest worries software users have today are computer viruses. These are evil little programs which hide in bigger programs and seemingly without warning can trash your machine. Most are found in public-domain packages downloaded from bulletin boards. But at least one, which issued a message of peace to Macintosh users in April, was accidentally loaded into a commercial training program.

Well, if you want to be sure you're computing safely, there's a solution. It's called Vaccine. It's a program by Foundation Ware of Cleveland, Ohio. Mark Hosmer, the company's director of software development, says it automatically checks each program in your machine for viruses and reports back to you. A small memory-resident program which comes with Vaccine can check each program you use before you use it. And if you have a big office where workers like to play computer games on company time, this program can foil them, too. Since it won't let you run a program it hasn't checked, you just use it on all the office PCs and hide the key disk. When a worker tries to slip a game floppy into his disk drive, they'll find they can't run it. The program will ship in July and retail for $189. CONTACT: FOUNDATIONWARE, 216-932-7717

### Apple Releases Antiviral Program

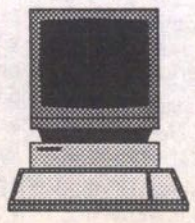
CUPERTINO, Ca. (NB) — Apple Computer has released a program which is the silicon equivalent of an AIDS test. The VirusRX will detect the presence of a computer virus in a system but will not eradicate it. The program is designed to specifically detect the Scores virus which recently infected Macintoshes in Congress and various federal departments. The program is the first response to what Apple expects will be a major assault on the problem of programs with a hidden agenda. Another response is a new Spread the Word campaign, designed to alert users to "safe computing practices" that will prevent the spread of computer viruses.

Meanwhile Apple is said to be actively investigating the source of the Scores virus but has no suspects yet.

### Virus in US House of Representatives

WASHINGTON (NB) — A virus that causes printer problems and difficulty in accessing certain applications has hit the Macintosh computers in the U.S. House of Representatives. Bob Harris, director of the House information systems office, told NEWSBYTES that he believes the virus has not yet spread very far among the approximately 250 Macs in use in the House. No virus was found among the population of 2500 PCs also in the House of Representatives.

"We are contacting users and working with them to show them how to identify the virus, how to get rid of it, and how to sanitize their systems," Harris said. Harris said he has called in experts from the National Aeronautics and Space Administration, which has faced a major problem of viral infection of Macs. NASA investigators are trying to find the source of the virus and Harris said he expects the agency will also try to identify the source of the House Macvirus. "We have no idea where it came from," Harris told NEWSBYTES.

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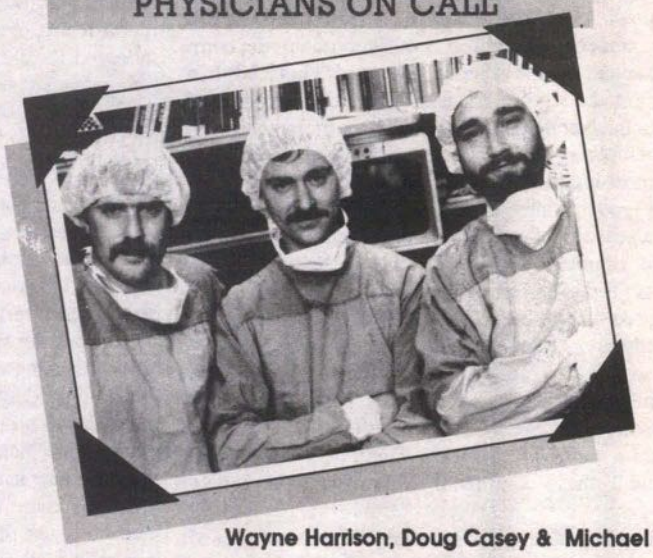

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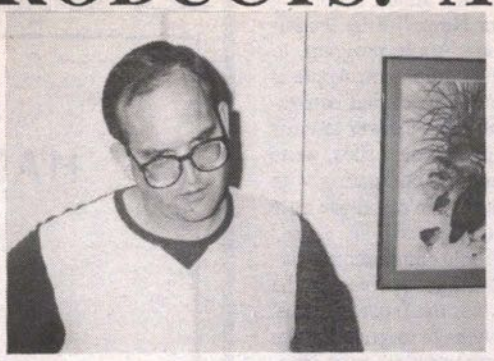
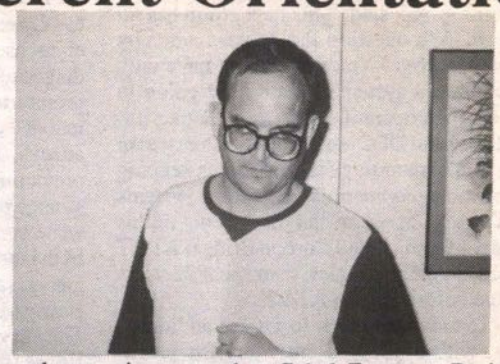
# CANADIAN MIND PRODUCTS: A Different Orientation





**WHAT'S IN A NAME?**

Even in an industry where unusual names are common, Roedy Green's company name has an interesting origin. Roedy explains, "When I was little, there used to be cartoons about people who bought stock in a mythical company called Consolidated Moose Pasture. The name appealed to me and I told Daphne, my baby sister, that someday I would have my own company, and I would call it Consolidated Moose Pasture.

I jokingly suggested that I wouldn't have to do anything except sue people who accidentally made fun of us, and live off those proceeds.

I come from a close knit family of seven. At the family feast gatherings they would ask, "When are you going to get this CMP on the road, Roed? We all want to work there too."

*Byte Magazine* asked me to do the article (on Abundance). This is not quite the truth, but at some point a conversation went something like this. "What is your company's name?" "I don't have a company, but we have a pretend company — we sometimes call ourselves CMP." "A pretend company?" "Yes, uh, what I mean is, it is not incorporated." "What do the letters CMP stand for?" Byte is a very straight-laced magazine. They were not going to disgrace themselves by using the words Consolidated Moose Pasture on their glossy pages. I had to think quickly. "Gulp, er ah er Canadian, er ah gak Mind er er um Products". "Canadian Mine Products? — do you sell mining equipment?" "No Mind, as in brain." "Oh." Long silence. Even that was too flaky for them."

**A DIFFERENT SET OF CORPORATE GOALS**

The unusual name matches an unusual approach to the company purpose. According to Green, "The purpose of a company is to provide services to the community and to provide a fun place for people to work. It is not to help one person, the owner, acquire outrageous wealth. Some people find this idea subversive, wicked and even communist. Our goal is to see to it that every charity on the planet has a records keeping system at least as good as the ones we provide."

He continues "The company should never be allowed to grow larger than twelve people. Bureaucracies are the world's greatest fun-killers and time wasters. If the company should become too successful, it must amoeba-like split in two. Everyone in the company should share equally in the revenue generated. This leads to a group spirit and optimal assigning of tasks. This has to be adjusted slightly to allow for the fact that some people put in more hours, but the theory is that emptying the trash cans is just as important as writing the inner-most interrupt level machine code."

Canadian Mind Products aims to produces products or services that contribute to a peaceful, clean, ecologically balanced, healthy, and well fed world. Emphasis is on seeing the greatest good done where there is most need. The company co-operates with others to transfer knowledge so that other fun work places can be set up.

In practice, Roedy says "I am a terrible business person largely because I have an aversion to money. I want to do everything free, then try to figure out later how I can pay the bills. I feel guilty every time I accept money from anyone. When I was little my Mom drilled into me *"Don't take money from strangers! Don't take money from your friends!"* I think these commands are still subconsciously functioning."

"We have recently moved to larger quarters in the showroom of Superior Office furniture supply store. So some of us now have very fancy computer furniture. To the owner, we are furniture models. I still hide out in an airless back room with my familiar fibreboard furniture."

"So far there is not much income and we are busier than bees, but very little of the work we do, do we get paid for. There are now five of us working round the clock. We have a long waiting list, and very often have to turn down new business".

**WHAT DOES CMP DO?**

CMP's main business is writing custom Abundance programs for charities, though they do commercial work as well — for doctors and book publishers. They also put on courses, help people fix machines, write public domain software, and magazine articles. According to Roedy, "We get requests almost daily to write programs or consult commercially. For example a few days ago Bell Northern Research wanted me to come back to Ontario for a couple of weeks to help them get their Btrieve applications flying. Nearly always I have to turn these requests down for lack of time. This drives them nuts. They want you all the more. I hear stories that computer programmers cannot find work. This seems so ridiculous when we are beating them off with sticks."

"I talk with other consultants who complain about how difficult it is to get contracts and I say, "Learn Abundance, then I could farm some of this stuff out to you." "Nah that's too weird. It would be too much work to learn a whole new language."

**SERVICES OFFERED TO CHARITIES**

The centre run by Canadian Mind Products, offers a number of computer related services primarily to registered charities. Some of the services are provided by a microcomputer in the charity's own office and others are provided by microcomputers in CMP's office.

The most important services we provide are: donation tracking and income tax receipts, pre-authorized chequing (taking regular monthly donations directly out of the donor's bank account), monthly reminders to the donors, mail labels, envelopes and form letters, volunteer participation tracking, pick lists to target mailings, word processing, electronic mail - world wide, accounting and statistics, and finally, newsletter preparation and typesetting.

CMP clients include a number of non-profit societies: The Hunger Project in India and Australia, The Manitoba Alzheimer Society, The Friends of Schizophrenics, Non Smoker's Rights The Columbia Centre, The Environmental Law Association and the BC Civil Liberties Association. Profit oriented businesses customers include Herbal Life, Okanagan Helicopters, Walt Disney and even NASA which used part of Abundance in it Saturn projects. Roedy, with his unusual marketing approach, has been known to turn away potential buyers if they are war oriented. He turned down both Rockwell and the Rand Corporation because of this.

Concludes CMP's founder Roedy Green, "I don't think I have ever worked harder than I do at my present job. I certainly have never made this little money. However I love my work. I love coming to work. I wouldn't trade my job for anyone else's."

**ABUNDANCE**

Abundance is a very high level language for writing non-profit, charity or business applications. A public domain Abundance compiler has been written that generates code for MS-DOS based machines namely the IBM PC XT and AT and compatibles.

Weighing in at over 7 megabytes for the full program including disk based documentation, learning Abundance looks like a formidable task, but it has its benefits. According to its author Roedy Green, Abundance has never issued a faulty statement, receipt, deposit slip, or pre-authorized cheque, it has never lost keying, or allowed its database to become inconsistent or corrupted. The Abundance system has been in use in a variety of charitable organizations and businesses since August 1984. No bugs have ever been reported.

**EASE OF USE: USER LEVEL**

Abundance was designed from scratch with the idea volunteers with little training would use it. It has been honed by watching volunteers use it. Features include: extensive prompting, an oops key, the Up arrow key lets you run the program backward in time to correct an earlier keying error, familiar word processing function keys work the same way they do in the word processor, elaborate error checking and ease of use. Given these, most volunteers can become productive within fifteen minutes. Speed is another of Abundance's qualities, it can keep up with the fastest typist.and the Abundance pick criteria are general enough that Abundance can produce new lists without a programmer's help. At the same time, they are menu driven, so no knowledge of Boolean algebra is needed to use this powerful feature. Abundance is relational so it centralizes all data, changes need be entered only once.

**EASE OF USE: PROGRAMMER LEVEL**

According to Green, Abundance represents a breakthrough in computer technology. He says computer experts are excited and eager to learn about it, making it easier to attract capable, dependable, computer-knowledgeable volunteers in future. A programmer's job can be made easier because new features can be added to the program more rapidly.

Abundance is terse. If a program were written in Pascal or COBOL it would be ten times longer. Because many irrelevant details are handled invisibly by the compiler, it is much easier to understand how the program works. Adding new features is easier simply because there is less writing, and less code to debug.

Abundance is also highly modular. No routine is longer than 15 lines. All routines use only the stack for working storage. This makes it very easy to change the program without worrying about side effects.

Abundance is written in standard Forth 83. Forth is the first fourth generation computer language. *Byte Magazine*, the leading microcomputer journal, now often has articles on Forth. No other language is so honored. Once a programmer has tasted the flexibility and power of the language, he will only under duress return to a third generation language such as C, Algol-68, Pascal, Modula, or Ada, or a second generation one such as Cobol, Fortran or Basic.

Abundance is designed to incorporate new hardware without rewriting the source code. For example a mouse, voice recognition, voice prompting, laser printing can all be added as the cost of this technology drops.

Abundance is in the public domain. Once a programmer has mastered its use, he is free to use it for his own commercial projects. Abundance is presently about three years ahead of any similar product on the market- Junior volunteer programmers can rapidly produce results with comparable professional polish and speed to those produced by seasoned systems analysts.

**DESIGN GOALS OF ABUNDANCE**

Abundance was written originally for a registered charity called the Hunger Project to keep track of donations, tax receipts, fund raising projects and volunteers. The volunteers who use the system are typically given five minutes training and are then let loose entering data. There is a high turn-over of volunteers. There was only one volunteer programmer, Roedy Green. The Hunger Project was doubling in size yearly. Later Abundance was used to write Medics a physician billing system that warned a green receptionist every time she was about to violate one the government bureaucracy's myriad billing rules.

Green say this background led to formulating four goals. In his words: "Top priority being User Friendliness for the unsophisticated user, next being Terse Programming so I could find time to write all the needed code, the next being the Elimination of Hardware Details from the Application so we could upgrade hardware without impact on our applications, and finally Blinding Speed because I am a hacker and experienced users don't want to be held up with tyro prompts."

Abundance has a number of unique features: Abundance programs can run forwards and backwards in time; while entering or editing data or programs all Volkswriter word processing commands work; Abundance programs can have bugs in them and still work; Abundance has 35 primitive types eg. dates, times, S.I.N. numbers, telephone numbers, area codes, French surnames and automatically generates keyin routines, prompts, error messages, edit checks, conversions, formatting, bounds checks, appropriate to each type.

**IT'S A BIT LIKE...**

Abundance borrows features from other languages and programming systems: Forth, Assembler, Multiplan, Smalltalk, DBase II, Basic.

Abundance is a strict superset of Laboratory Microsystems Forth 83 Standard 32 bit Forth Plus. Thus Abundance can do anything you can do in Forth.

Abundance includes a Postfix Assembler. Thus any time critical code can be written in Assembler for speed. Abundance itself is runs about 10 times faster than Basic.

Like Multiplan, Abundance automatically refreshes the screen if a variable is recalculated. But unlike Multiplan, Abundance lets you lay the screen out in any way you wish. Abundance takes the Multiplan concept of windows with independently scrolling regions of data and extends it to the fully general concept of scaffolds. Scaffolds allow, for example, multiple columns of data of intermixed types to automatically scroll. Scaffolds allow any conceivable layout of data. Abundance automatically scrolls to keep the data you are working on in view.

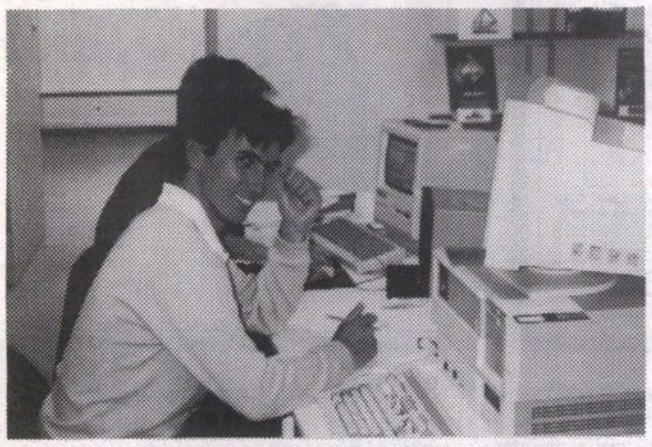
Like Smalltalk, Abundance manages its own virtual memory. From the programmer's point of view, there is no distinction between RAM and disc. He just pretends that everything is always in memory. Abundance looks after the details of refreshing the disc copies of certain variables from time to time.

Like Dbase II, Abundance lets you create multiple Btree Indexes to your data so that you can find data by name, or by date, or by account number. Unlike Dbase II, there are no limits on field sizes, numbers, indexes or files. Abundance is much quicker than Dbase II, largely because it interfaces to the very efficient Btrieve Btree package and Opt-Tech sort. Unlike Dbase II, Abundance is an open system; You can tinker with the innards of Abundance to add new features. Unlike DBase II, Abundance uses standard DOS files, which are easier to interface into other programs.

Like Basic, you can rapidly debug your programs without having to recompile your whole system. Unlike Basic, Abundance is compiled for speed of execution, but it is so designed that compilation is very quick, and you usually do not need to recompile all of your program. Unlike Basic, Abundance program can be larger than 640K. Abundance programs are much more terse than Basic, much easier to read, and much more structured. Abundance is suited for large complex projects and the price is right at $75 US.

Roedy Green and Canadian Mind Products are at 1150 Homer Street, Vancouver, BC Canada V6B 2X6 (604) 684-6529

# CONNECT: Minitel Marketed as Cost Effective Telecommunications Network



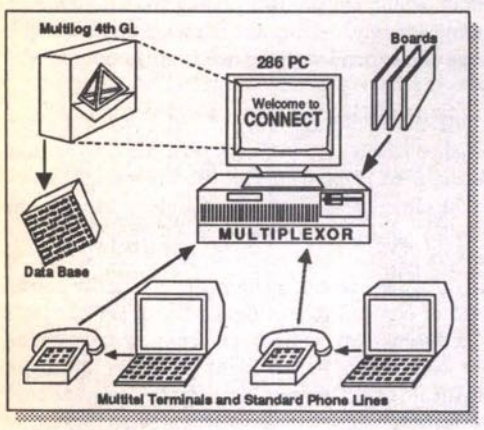
We Canadians didn't get it right the first time. According to Eric Venot, founding partner in CONNECT, the reason the Canadian Teletex system, Videotex failed previously was because although the graphics were better, they were too slow. This meant inconvenient waits to the users.

### 3.5 M FRENCH USERS CAN'T BE WRONG

The French Minitel system on the other hand has enjoyed enormous success because, with a lower level of graphic support, it is faster and cheaper, costing usually around $29 a month for the terminal and a maximum of $15/hour of access time. In addition, the cost of equipment rental is masked from the user, being billed right along with the telephone charges in their monthly statements. What began as a method of decreasing the cost of printing telephone directories, has blossomed into a national pastime for the 3.5 million plus users in France. They can look up phone numbers, get "Yellow pages" type information complete with advertising, do home banking, purchase goods from a wide variety on-line vendors complete with illustrations of the product, get the latest news, access airline schedules and perhaps best of the all, have real time electronic "chat" sessions with other interested parties.

### COTTAGE INDUSTRY SERVERS

One spin off from the successful Minitel system has been a growth industry in local server systems which are accessible from the Minitel system. Any one with an AT, a multiplexor and a few phone lines, can set up their own server system, similiar to a North American BBS. These servers encompass a wide spectrum of products and services ranging from a wholesaler posting his prices and weekly specials to his distributors, to businesses or organizations announcing meeting notices and information for their members. This is the end of the market Eric Venot and company hope to address in the Canadian market.




*The components of a typical Minitel system*

### CHALLENGES AND OPPORTUNITIES

Because Canada lacks the support structure that Minitel enjoys in Europe, CONNECT faces more of an uphill battle in selling their solution. They do however have some very strong points going in their favour, one of the most important factors is cost. The Minitel terminals can retail in Canada for $600. This makes them very competitive with other solutions which are often double that price for a terminal. Another appealing factor of the system is the nature of the user interface. With traditional PC based communications systems information is sent over the phone line-by-line in one character size and type face. With the Minitel system, transmissions are made a page at a time, which allows much more flexibility in what is presented. Graphics, a variety of typefaces and various emphasis points can all be transmitted to the user, making for a much more friendly interface.

### POTENTIAL BUYERS

Some of the specific solutions which CONNECT is currently bidding on include the Medical Services Plan Electronic Claim Submission, a buyers group for the restaurant industry in Vancouver, a hotel reservations network and a local School Board. CONNECT is able to present a very cost effective solution because of lower hardware costs as well as considerable savings in training time for users. A four line server system can be implemented for about $1900 per line. This includes the boards in the AT, the multiplexor to handle the phone lines and the software. Terminals sell for $600 each and the cost of the AT is also seperate. A four line system can handle up to 192 ten minute calls in an eight hour day.

### NON STANDARD MODEM AN OBSTACLE

One hurdle for the company to overcome is the non-standard modem which the Minitel system currently uses. The boards which go into the server AT computer currently use V23 standard modems. This sends transmissions from the server at 1200 baud, the average person's reading speed, and it receives typed feedback from the terminal at only 75 baud, the rate at which most people type. This differs with the standard 1200 baud or 2400 baud transmissions both ways common to most North American modems. CONNECT recently managed to get their system working with standard modems on a single line system and they feel they will have a working solution to multiple lines very soon. This will open up many more doors for them because it will mean the existing base of PCs will be able to connect with the server system, using standard modems. Once this modem issue is overcome, the software already exists to allow most popular machines including the IBM and compatibles, Macintosh, Atari and Commodore to emulate Minitel terminals. Other exciting features of the system include an ability to send FAX messages.

### CANADIAN CONTENT

The Canadian content in CONNECT products include both local software development and hardware manufacture. CONNECT plans to have the boards and multiplexors assembled locally by Epic Data.

### CONNECT-ABLE FUTURE

The Minitel system in France with over 3.5 million users is a testament to the ease of use of the system. It also means that new software will continue to be developed for the terminals. The Minitel terminals are made by industry giant Philips so hardware service is not an issue. Multilog, the 4th GL development language which is the back end of CONNECT's software solution is a strong contender in the European database market and show signs of growth in North America as well. All these factors combined with the cost effectiveness of the system and the promise of compatibility to Bell's Alex system, suggest that CONNECT has a strong future.

CONNECT and Eric Venot can be reached at 681-8100 Suite 505-1281 W Georgia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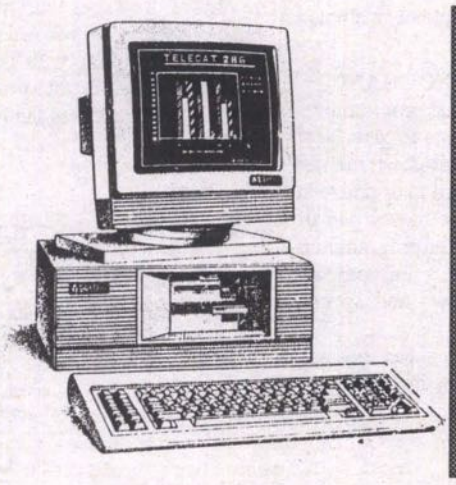

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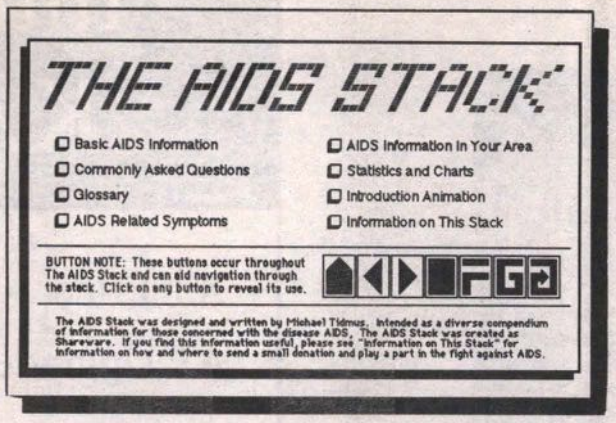
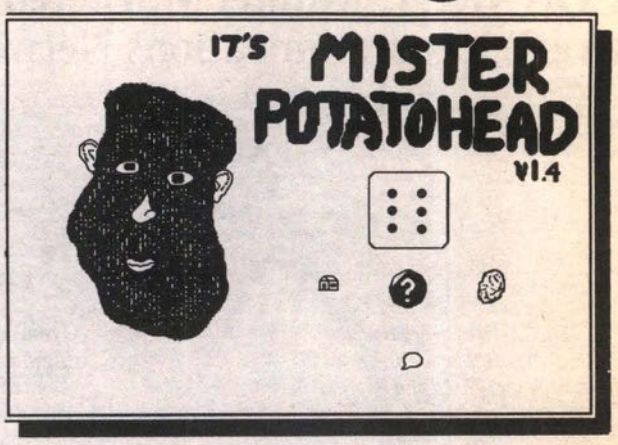
# HyperCard: The Next Software Revolution Begins

What is it that really keeps you from getting more productivity from your computer? Does computer programming seem too complicated or costly? Is your data too large or unorganized? Do all database programs seem mysterious to you? If you answered yes to any of these questions then HyperCard for the Apple Macintosh might be the answer.




***From the serious to the frivolous and everything in between. Hypercard has sparked alot of novel programming ideas.***

## ORIGINS

Since it was announced in the fall of 1987, HyperCard.has been the source of much talk. The name HyperCard is based on the metaphor of a super sophisticated programmable stack of electronic index cards. The "Hyper" part is borrowed from Ted Nelson's concept of "HyperText" His idea was to have a free flowing associative database that allowed individuals to browse through textual information with total freedom to associate any concept or fact with any other idea or fact at the touch of a key or click of the mouse. HyperCard does all this and more.

## INTELLIGENT INFORMATION

In HyperCard programs you actually give "intelligence" to the information itself. This is what really sets HyperCard apart from other database type programs and is the reason for the dawn of a revolution in computerized information management.

Having a conventional database full of information can give you a lot of power. Imagine how that power would be magnified if the information, itself, had "knowledge" of what it was, or could carry programs within itself that gave it more meaning. For example, a group of numbers representing a company's annual sales figures could contain the capability to display themselves as a graph at the click of the mouse button. Or an individual's name in a database would be able to show you a photograph of the person instantly on command. All this is possible in HyperCard. Once data is imbued with such intelligence, it will always remain associated with the data, even if the data is moved to another file. This is the essence of HyperCard's object-oriented programming: the program stays with the data.

## APPLE 'S WIZARD

HyperCard has been the pet project of Apple's software wizard, Bill Atkinson, for the last three years. In fact ever since he completed the Quickdraw graphic toolbox upon which the Macintosh user interface is based, and MacPaint, one of the original programs bundled with the Mac, Bill and a small team of programmers have been working on this software "pièce de resistance."

Apple is bundling Hypercard free with every new Macintosh sold. (Current Mac owners can obtain a copy for a nominal fee of $49.00 U.S.) The simple reason for this is that HyperCard makes it easy to customize and program the sophisticated Macintosh graphic user interface. With HyperCard you can customize your working environment to suit your own personal style. A user's needs can be served more appropriately and he or she can be completely insulated from the workings of the disk operating system.

## BEFORE HYPERCARD MAC TOUGH TO PROGRAM

Until the introduction of HyperCard, even the best programmers would complain that it was hard to write software for the Mac. New concepts like event loops, windows, scroll bars, pull-down menus, and system resources were difficult to learn and hard to organize in program code. With the advent of HyperCard, the messy part of programming the Macintosh is made transparent to the programmer. Now anyone who has dabbled in BASIC or written a few complex spreadsheet formulas can program fancy windows and special buttons on the Mac with ease, using HyperCard.

To be sure, HyperCard is not a programming panacea that will meet everyone's needs, but it goes a long way to meet the fundamental requirements of the vast majority of computer users.

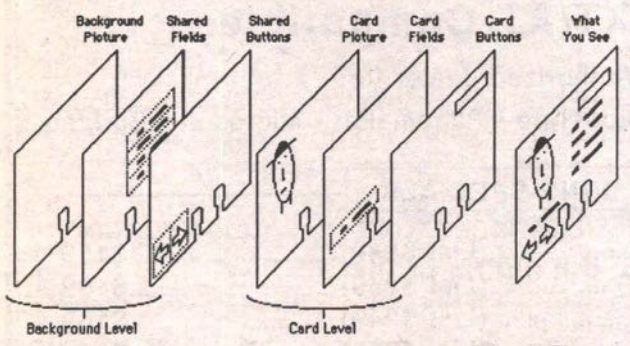



***Figure 1. HyperCard's objects are combined on cards in layers as if they were on clear pieces of acetate piled on top of one another.***

HyperCard takes the idea of spreadsheets and extends it. Just as each individual cell of a spreadsheet can be thought of as a distinct computational object that has a formula, format, result, and references to other cells, so HyperCard is made up of similar computational objects. The difference is that HyperCard's "objects" are much more varied and powerful than a cell on a spreadsheet. Besides alphanumeric "field" objects that can mimic spreadsheet cells, HyperCard has four other types of objects. There are "button" objects which can be clicked with the mouse's screen pointer causing any number of actions to be performed. There are "card" objects which are just like index cards in that they can be sorted, filed, found and even programmed. There is also the "background" object which can underlie a group of cards, providing them with common elements. Finally there is the "stack" which is a group of cards with their various backgrounds, buttons and fields taken together. A stack is simply a "stack of cards" and is analogous to a conventional disk file.

## EVERYBODY'S HYPERTALKING

At every level in this "hierarchy" of objects programs can be written in a language called "HyperTalk." But programs in HyperCard aren't exactly like conventional computer programs. They are so called "object-oriented" programs because they must be broken into little segments that get attached to the individual objects that make up the HyperCard environment. Instead of having one big program that has a beginning, middle and end, you must divide the job into many small little tasks called "scripts." Each of the five basic HyperCard objects can have an optional script associated with it, giving it a certain amount of functionality or "smarts." These scripts only execute upon receipt of a message that tells them to start running. Hence in the lingo of HyperTalk, scripts are called "message handlers." This is because all the HyperCard objects are constantly sending and receiving messages. At the same time the system itself continuously bombards all the objects with messages, too.

## MESSAGES

You create working programs in HyperCard by intercepting this myriad of messages with message handling scripts located in the various objects. As you can see, this requires a new way of thinking if you are familiar with conventional programming techniques. However, if you are not a programmer, it turns out to be a much more natural way to address the task of computer programming.

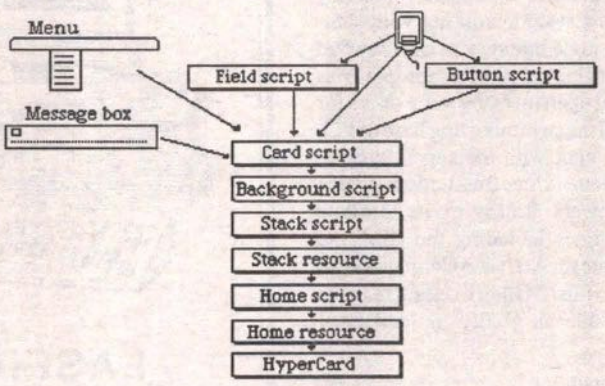



***Figure 2. Messages in HyperCard are passed from low level objects down through the object hierarchy until they come to HyperCard itself. Somewhere along the way they may be handled by a script that is waiting for just such a message.***

## GRAPHICS, SOUND AND OUTPUT

Although Hypercard graphics lacks 300 dpi output quality because it uses bit mapped instead of object oriented graphics, it does look great on the Mac screen. HyperCard can also deliver digitized sound like that found on CD recordings. These sounds can be synchronized with the graphics, too, resulting in interesting animation effects. HyperCard has a number of other built-in features. HyperCard can dial a phone number by sending the standard touch tones out the speaker on the side of the Mac. If you hold your telephone handset up to the Mac's speaker, the number will be dialed for you. It also works with a modem.

## REACHING OUT OF HYPERCARD

HyperCard's abilities to interact with any software or hardware in the computer's environment are broad. This is due to the fact that built into the HyperTalk language is a technique for extending its set of commands and functions through the creation of custom external resources in Pascal, C, or machine language. Already, there are commands in the public domain that can easily be added to your copy of HyperCard making it possible to access information on a dozen brands of laser video disks and CD ROM devices. HyperCard is designed to find any piece of information in a 400 megabyte file in under two seconds. This means you can get high quality video images on a TV and stereo sounds from a CD player in seconds. HyperCard is a product that is designed for the near future when this level of information management and retrieval will be commonplace in most households.

HyperCard allows the user to jump to any other software application or document on any disk connected to your Macintosh computer. This ability is available at any time from within any HyperCard stack. Once you do this, HyperCard records the path back to this application, unless of course the application is moved.

## HYPER-LINGUIST

HyperCard has been designed to be used and programmed in any language that uses standard roman characters such as French or Swedish. Any HyperCard stack developed in one language can be easily translated to any other language if the proper translation resource is present.

Considering HyperCard's current set of abilities, it is interesting to note that Bill Atkinson considers his work only 2/3 done. Version 2.0 is due for release later in 1988. Apple is apparently working on versions 3.0 and 4.0. These advanced editions of HyperCard will be presumably faster, easier to use and more advanced than today's version.

## LOCAL USES

Local use of Hypercard is on the rise. As a consultant, I have introduced several businesses to HyperCard. One law firm now uses HyperCard to import large text files of court transcripts over the telephone lines with a modem. Then, at the click of a special button, any and all occurrences of a specified piece of text are found, extracted, and assembled into a report showing where they appeared in the transcript.

A real estate consulting firm in Terrace is creating a stack for a large client that organizes information about hundreds of properties all over the world. The information is presented in a free-form associative manner, so that digitized maps can be clicked to show aerial photographs or site plans and buildings can be clicked to show floor plans, maintenance schedules, financing details, resale value, tax rates, etc. Finally another Vancouver firm is now using HyperCard to keep track of customers, product pricing and all invoicing. Systems such as these are easy to set up and maintain and have wide flexibility to change and expand with the needs of the company.

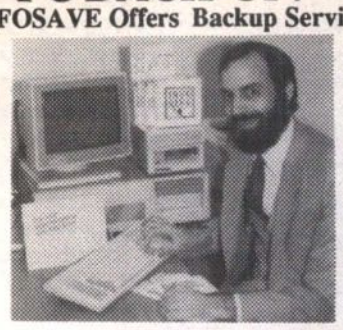
## HYPER-IDEAS

Although it is difficult to describe HyperCard to someone verbally, in my experience whenever a business person has sat in front of the Macintosh and tried HyperCard for just a few minutes, the reaction is always the same: ideas about how it could be used around the office immediately spring forth with great excitement. Unlike most database programs that have mysterious concepts such as records, fields and files, there is nothing immediately baffling about HyperCard. Instead of confusing new users with arcane concepts and rules, HyperCard stimulates people to think of new and exciting ways to use their computers. At the same time, for the more adventurous sophisticated user, HyperCard offers a real challenge and opens up a whole new world of object oriented programming to explore.

*Barry Shell of SoftShell Small Systems Software Design Inc., a company that provides a full range of Macintosh services and applications for small businesses. First-prize winner of Microsoft Canada's Excel Macro Writing contest, he teaches courses and workshops on Excel and HyperCard and writes for a variety of magazines that cover the Macintosh industry. His books, "Concise Guide to HyperTalk" and "Running HyperCard with HyperTalk" are published by MIS Press. He received his B.A. degree from Reed College and his Masters from UBC SoftShell 4692 Quebec St., Vancouver, B.C. V5V 3M1 (604) 876-5790 See the Calendar Section under the Macintosh heading for details on Hypercard courses.*

# PC BACK-UP:

## INFOSAVE Offers Backup Service



*INFOSAVE's Shoel Rosenhek*

*Disaster recovery has long been available at the level of mainframes and minis. Now as the power of micros increases and correspondingly the value of the data contained on them increases, a local company has brought this type of data backup service to the personal computer market. INFOSAVE Service Ltd., (121, 810 W Broadway 875-1552) a Vancouver based company, has introduced a service which addresses these needs by providing a relatively inexpensive, secure means of dealing with personal computer data back-up. We talked with INFOSAVE's Vice-President, Shoel Rosenhek recently.*

**TCP:** What is INFOSAVE service?
**ROSENHEK:** INFOSAVE service is a back-up service for personal computers designed to make sure that your data is safe, secure & recoverable when you need it. Many PC users are not aware, or simply refuse to admit to themselves, that the hard disk in their PC could "die" without even a moment's advance notice. A power surge, an accidental bump, theft or even a fire can leave you 'sans' computer data. If you use your PC for serious work, then you MUST back it up in prevention of that ever pending catastrophe. Otherwise, your just asking for trouble.

**TCP:** What type of company might need the services of INFOSAVE?
**ROSENHEK:** Just about any business who has an IBM PC or compatible with hard drive and is using the machine for business, word processing, CAD/CAM, engineering, programming etc. In fact, any serious PC user whose hard drive contains upwards of 10MB of data would benefit, monetarily as well as from peace-of-mind, through the use of INFOSAVE service.

**TCP:** You mentioned PC catastrophe. How often does this actually happen?
**ROSENHEK:** Our sources indicate that PC catastrophe is actually quite common. One local writer recently noted that he had had four crashes in his life: one in an airplane, one in a car and two with his hard disk. A major B.C. corporation representative claims that in the past year, with approximately 300 PC's in use company wide, between 20 & 30 machines experienced storage problems requiring that the hard drive be re- formatted and its data restored. That's almost 10% of their PC's! In a recent computer publication interview, the theft of a personal computer worth about $4,000 was being discussed. "without backup, data recovery would have taken three months at a cost of $100,000. The data was worth 25 times the value of the hardware!"

Insurance will only pay for the replacement of stolen or broken computer hardware. INFOSAVE ensures that your valuable computer data is regularly backed-up, securely stored and promptly recoverable. Calculate your own odds if you don't have a proper back-up plan. Can you afford to take that chance?

**TCP:** How does INFOSAVE service work?
**ROSENHEK:** Typically, an INFOSAVE technician will visit your office once each week at a predetermined time to perform a full back-up of your hard drive(s) to magnetic tape. After verification, this tape is removed from your office for storage off-site in an environmentally controlled media vault.

**TCP:** What about between back ups?
**ROSENHEK:** INFOSAVE service also includes a daily back-up kit designed to keep your back-ups up to date. All you have to do is enter INFOSAVE at the DOS prompt and follow simple instructions. All necessary supplies are provided.

**TCP:** How much does INFOSAVE service cost?
**ROSENHEK:** There is a one-time installation fee of between $250 and $310. Monthly service fees start at $25 for once-a-month service of a 20MB PC. It's really a good deal considering that INFOSAVE service includes equipment usage, mag tape, time on the road, time in your office & a daily back-up kit - all for one low monthly fee! When you consider your cost in employee time, diskettes, pick-up/delivery and vault storage fees, to do the equivalent job yourself would cost about twice as much as INFOSAVE service.

**TCP:** Where can our readers obtain more information about INFOSAVE service?
**ROSENHEK:** Your readers can call our office at 875-1552. We will be happy to provide a free analysis of their PC back-up and storage needs, supplying them with pricing and available pick-up days/times for their area.

# AMIGA DATABASE

## DynaBase for the Amiga

*DynaBase developers Daryl Hegyi, Robert Hardy and Steven McClain*

DynaBase is a flat file database program for the Amiga series of computers. It is an interesting product for B.C. Amiga users, not only because it is locally developed, but also because it does the job well and in a straightforward manner.

I first came in contact with the authors of DynaBase at the local users group. Daryl Hegyi gave a demonstration of a "beta" version of DynaBase. The program was well received but needed many improvements. I have remained interested in their progress as DynaBase becomes more and more powerful. Version 2.0 is just around the corner. I have watched the product grow to become one of the most trusted tools on my computer. I use Dynabase in my business to handle all my mailing lists, clients and enquiries. It gets much of the "bull-work" done smoothly in our operation so that we can concentrate on having FUN with our AMIGA's.

Configuring Dynabase requires an understanding of the use of a text editor in order to write database scripts. Several examples are provided in the Demos section of the disk, including a phone book, home inventory, book and music catalogue. Some one familiar with databases from another system, will have no trouble adapting these demos into their own specific needs. This process will get even easier in the upcoming version wherein field specifications and report designs can be made and arrange graphically on screen.

The biggest complaint against the current version is the manual. As with many small software companies, insufficient resources have been allocated to explaining how the program works to non-programmers. The current version of the manual leaves much to be desired. I have been assured it is being rewritten with a more "user" oriented approach. The Amiga's multitasking capabilities are well exploited by DynaBase. It is possible to call up the operating system commands allowing complete flexibility in using the Amiga as it was meant to be used. This integration with all other well written AMIGA programs is important to me. In addition, pull down menus make the program easy to use for novice users.

I have looked at a number of other commercial database programs for the AMIGA. Superbase is perhaps the best known of these but falls short of its promise because of a considerably higher price. It also has the drawback of being copy-protected. I would never own a software program that had to have a dongle (a copy protection hardware based key system) hanging off the side of my computer. Other database programs are either far too expensive for my pocketbook or fills only some of my needs.

DynaBase is available for both the AMIGA and IBM compatible computers. The new version in scheduled to be available in about 2 months. Currently the price now is $39. The new price will go up but is still projected to be less than $50. For the price and with the features and flexibility, Dynabase delivers.

Dave Allen is the former head of the local Amiga user group. He also offers computer consulting services. He can be contacted at RSI 270-0064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# ASKSAM:

**Software for Accessing and Maintaining Textual and Numeric Information by Seaside Software.**

A database system with a name like *askSam* is bound to catch one's attention: not only is the name unusual but the software is as well. The name "*askSam*" stands for "Access Stored Knowledge via Symbolic Access Method" and the software is designed to handle free-form text- based databases. *AskSam* can be used to access and to keep track of such diverse things as inventory and sales, catalogs, budgets and billings, bibliographies, collections, personnel records, customer files, patient histories, legal documents, word processing files, and much more. After running *askSam* against text files, information may be retrieved using any word or combination of words as a key value.

**Why We Were Looking At AskSam**

Because of our database background, we recently had the enviable assignment of evaluating over two dozen data base software packages, including *askSam*, for a CD-ROM application. To gain a proper perspective of the client's requirements we took a 60 megabyte subset of the main database and accessed it with *askSam*, one of the few full-text retrieval products that did not require extensive input "filtering" or pre-processing. Although the original data is fielded our extract had no structure to it, that is it did not contain indexes or inverted lists. This was an acid test for *askSam* as we had never used *askSam* before and like a typical end user we had only dusted the manual's cover before running the software. To our surprise and with minimal effort we had full-text retrieval of our database in a relatively short time. *AskSam* proved to be easy to implement and the well designed menus combined with an extensive context-sensitive help facility made it simple to use.

**Managing Documents**

*AskSam* will manage records, queries and commands. Related information is stored within a file as records and documents, where a document may contain any number of linked records and can thus be of any length. The limit to the number of records or documents in a file is the available disk space. The use of fields is optional and flexible and is used to add structure to the information. Fields are variable length and may be located anywhere in different records. Field names may consist of any group of words. Virtual fields, or fields resulting from calculations may also be defined.

**Hypertext Style Information Retrieval**

Information may be accessed by combinations of words or symbols within a record or document. Wildcards and proximity searches are supported, as is sorted output and reformatting of the selected information for either screen display or printed reports.

In addition, often-used or complex requests may be stored as a program for easy recall and updating. The command set is rich enough to allow for complex programming when necessary, especially when the new Hypertext facility is used to advantage. Hypertext turns normal *askSam* records into point-and shoot menus. That is, words of groups of words on the screen may be used: 1. as a basis for a request, or 2. to activate another *askSam* file, or 3. to request the execution of another *askSam* program.

**Modem Dial-Out Capability**

If a modem is used, *askSam* will even dial the phone. Also available from Seaside Software is a mail merge module for creating personalized letters and reports. A network version of *AskSam* is also available as is a read-only version for those wishing to distribute a database with full-text retrieval capability.

**Indexing**

*AskSam* finds information by scanning *askSam*-formatted files and it does this with surprising speed. However for large databases this can too time consuming. To improve the access speed an indexing facility is available, although it is restricted to only one index per file. Indexes may be created at any time using any field and the index is maintained within the file. Note also that for non-indexed searches because the records are scanned starting from the first record, we do not know the number of times the search value occurs within the file.

**The Manual**

The manual documentation with the program is quite good with a lot of examples and lessons. Commands are explained in fine detail and there is an extensive reference section for the experienced user. My only wish in this department is for more technical details on what *askSam* is doing and the file formats it uses. It is obvious that a lot of effort has been made to provide excellent documentation particularly for the novice user. This is complemented with the context-sensitive help facility.

**Not Quite Ready For C-ROM**

As full-text retrieval software, *askSam* is certainly a very capable package offering an easy way to access large text files. We found it simple to implement and the data files were easy to maintain. However, like any data management software the application must fit into the box. In the case of our 60 megabyte extract we had too many fields and the full blown database would have been to large for *askSam*. But if your database is not quite that big, consider *askSam*.

Peter Turner has 12 years of database experience, has written and taught numerous courses on the subject. He is a former Hewlett Packard Systems Engineer, a consultant on performance and capacity planning, and President of Optical Storage Systems Inc. He can be reached at 876-3838 or 875-6616.

LOCAL AREA NETWORKS

**UNDER THE HOOD - WHAT MAKES NOVELL GO?**

In the last article, we looked at various methods of physically wiring workstations together to form a LAN. Regardless of the topology, it is clear that the file server has a lot to do. This month, we will look at the NOVELL operating system, and examine how workstation requests get serviced quickly and accurately.

**SERVER FUNCTIONS**

From its inception, Novell has stressed high performance, reliability, and expandability as three fundamental goals to be met by a Network Operating System (NOS). Novell's solution, called Netware, is a special purpose NOS specifically designed and optimized for the distributed processing LAN environment. General purpose operating systems, like DOS or UNIX are designed to run in a variety of environments, and cannot be optimized.

In the file server, all workstation requests for disk reads or writes, printer spooling, network access, and other services must be satisfied. Server operations, called processes, operate independently from each other, in a "nice guy" environment whereby a process which is not busy, or waiting (for a disk or printer operation to complete) will relinquish control of the server to another process which has work to do. Of these processes, the most critical in terms of performance is how the disk input/output (I/O) requests are serviced.

**DISK DRIVE OPTIMIZATION**

An AT system running DOS at 8Mhz, 0 wait states could perform an average of 50,000 instructions during the time it takes a disk drive to perform 1 physical operation. Since a SINGLE read or write request may require several disk operations, hundreds of thousands of instructions are wasted while DOS performs any disk I/O. Clearly, by reducing the number of I/O operations, or doing other work while the disk drive is busy, performance would be improved. Novell uses many techniques to reduce the number of disk accesses.

**DIRECTORIES AND FAT TABLES**

Any data access involves reference to directories and File Allocation Tables (FAT) which are loaded into the server memory (RAM) when the server is started. This is called caching. Netware always refers to the copy in RAM when required. In addition, directories are specially ordered (hashed), and FAT tables for very large files may be indexed to further optimize searching.

**DATA CACHING**

Netware server disks store information in 4,096 (4K) character blocks, called "sectors". This is the minimum number of characters read or written by a disk I/O operation. Thus, even if a workstation request a read of 100 bytes, Netware will read 4K. However, the 4K sector is stored in RAM, the next request from the workstation will likely be in RAM, eliminating the physical disk access. This is called data caching.

When a write request arrives, Netware simply writes the changed information into its data cache RAM area, and immediately informs the workstation that the write request has been completed. The workstation carries on without delay, and Netware physically writes the changed cache buffers later, when the server is not busy.

**ELEVATOR SEEKING**

Data caching saves a tremendous number of disk operations, but is not the end of the story. When Netware does need to access the disk, it re-arranges the order of the sectors it needs to read or write so that the disk head movement will be in a sweeping fashion, from one edge of the disk to the other, rather than thrashing all over. This technique is called Elevator Seeking, and not only improves performance, but may extend the life of the disk drive.

**DATA INTEGRITY**

There is no point in optimizing performance if you can't trust the data. Netware requires that all server disks are initially put through an exhaustive format and test procedure BEFORE the disk is installed on the net. For large disks, this process may take several days (as opposed to DOS format which would take many minutes). Disk drives which fail cannot be used.

In addition, each time Netware writes a sector, it immediately reads it back and verifies that the data was written correctly. A failure on a read after write check will be reported immediately. When the disk drive is initially set up for Netware, a portion may be set aside as a "hot fix" area. If a read after write fails, Netware will lock out the bad sector, and use one of the free "hot fix" sectors in its place. This occurs automatically, assuring a higher degree of data integrity.

**FAULT TOLERANCE**

Read after write and hot fix do not help if the entire disk drive fails. Netware can minimize this risk by allowing duplicate "mirrored" disk drives, each duplicating the data. If one disk fails, Netware simply continues using the other until the failed disk is repaired. Data mirroring occurs through Netware, the application programs need no modification. As an added bonus, Netware allows "split seeks" on mirrored drives - a read request is directed to the drive whose read head is physically closest to the desired sector, further improving performance.

Another option with mirrored drives allows the disk controller

**(CONTINUES ON NEXT PAGE)**

Mike Wolfe is a partner with Softrak Systems Inc., responsible for the sale, installation, and support of Novell LAN's. He also teaches introduction to LAN's through the Vancouver School Board.

## SHAREWARE SHELF

### SHAREWARE SOURCES

Where can a person acquire up to date and authorized SHAREWARE programs? There are many sources of SHAREWARE programs available in the Greater Vancouver area, including the Public Libraries. Some computer stores offer free software with the purchase of a computer. Remember this "free" software needs to be registered and paid for if you continue to use it.

Another pitfall to watch out for when you acquire software from a SHAREWARE vendor, is the age of the software being sold. Some'dealers' of SHAREWARE are selling old PC-BLUE or PC-SIG libraries. Only authorized dealers for these groups have the up-to-date versions of the software available. Why test run a two-year old version of PC-FILE + or PC-WRITE to see if it is 'what you need'?

Purchase your shareware from "authorized, reputable" vendors, and you will find SHAREWARE programs complete, fulfilling, and fascinating. Question your vendor about updated versions, technical support, and ask to see his vendor's authorization from the company he is acquiring his SHAREWARE from. If you purchase 'cheap' software, you may find you get 'cheap' service.

### FILE EXPRESS

In my last column I discussed database managers, specifically PC-FILE III +. One of the main requirements of good database program, I stated, is its ease of use. FILE EXPRESS by EXPRESSWARE of Redmond, Washington was written by David M. Berdan, and easily fulfills this requirement. Of all the database programs on the market, FILE EXPRESS is probably the easiest to learn, and its 90+ page manual on diskette is one of the best written manuals available for a database program (300 page manual with registration).

After FILE EXPRESS has been updated by the author, EXPRESSWARE usually releases the previous version to SHAREWARE. This encourages users to register with EXPRESSWARE, to receive the most current version. It also means that trial users of the program are always one version behind. This tends to handicap EXPRESSWARE, as most user supported software in the SHAREWARE libraries are current versions. The currently released version of FILE EXPRESS may not have the advanced features available in PC-FILE +, but those people who register with (purchase from) EXPRESSWARE directly, may have some pleasant surprises awaiting them. If you acquire a SHAREWARE version of FILE EXPRESS, remember that you probably are not using the most current release. The newest update is Version 4.07

FILE EXPRESS is popular because of its simplicity. It has single key commands, and helpful menus. It does not have a "teach" or "assist" mode, but the clear, concise manual makes up for this shortcoming. The function keys can also be "programmed" for data entry. Version 4.07 allows for 16 million records per database file, 3,000 characters per record, 120 fields per record, 250 characters per field, 14 digit numeric accuracy, and can sort on up to 10 fields. You can also add or delete fields in an existing database. It has most, if not all, the features available to any good database manager, but most importantly, it is not cumbersome to learn or use.

Questions on Shareware? Call Gordon Simmonds at Sim-Com Services at 585-2326

### LANS CONTINUED FROM PREVIOUS PAGE

board to be duplicated. Each drive is attached to its own controller board, so a board failure will affect only one drive. This is called "Duplexing". Split seeks and duplexed controllers effectively double the rate at which data can be read from the disk. Yet to be announced, but in the works at Novell, is the ability to duplicate servers. When this is a reality, LAN's will be much closer to assured non-stop operation.

### TRANSACTION TRACKING

A risk still exists that data may become corrupted because a workstation failed during a critical update. Putting an uninterruptible power supply on your server will not help if the power fails when a workstation is half way through a long posting run. Netware's Transaction Tracking System can be told to monitor updates to critical files. A set up updates, called a "transaction" are guaranteed by Netware to either ALL occur, or NONE will occur, thus eliminating the risk of data file corruption through partial updates.

### TUNING IT UP

Novell's latest release of Netware - V2.11 provides Netware installers with lots of statistics to help in fine tuning the network performance. A quick review of this month's article reveals a general theme - higher performance needs more RAM and a faster drive, in that order.

There are many reasons why a LAN will bog down, but if you suspect that the server is overloaded, don't rush out and buy an 80386 system - it will probably help, but perhaps not as much as you thought, and it is costly. Substantial performance improvements are possible by simply adding more RAM to your server, so that Netware can eliminate even more disk I/O operations. Also look at your hard disk, if it is more than 80 percent full, or is an older 40 millisecond drive, installing a larger, faster drive (or additional drive) can help a lot, at far less cost.

Next month, I'll look at what a LAN can do for you, in terms of security, sharing printers, connecting to other LAN's, mini's, mainframes. Then it will be crystal ball time - what is the future for LAN's.


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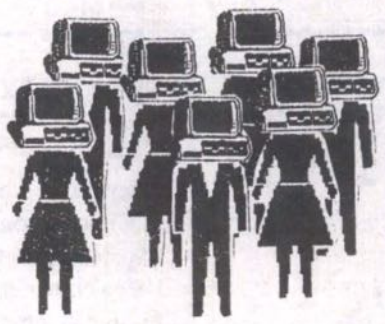

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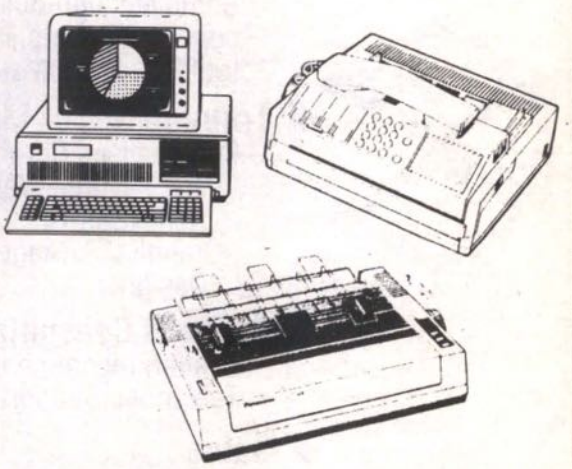

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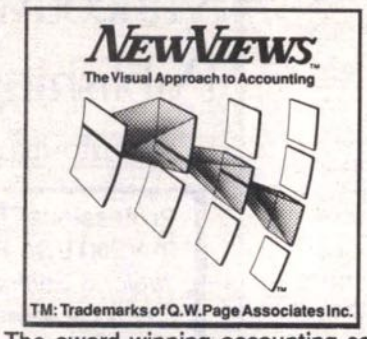


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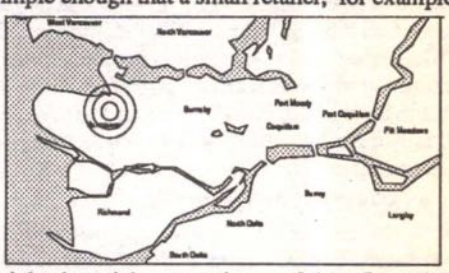
**NorthWest High Tech 1988- A Guide to the Computer Industry of the Pacific Northwest and British Columbia.** (185 pages) by John Spiker and Karen Strudwick. Resolution Business Press recently published a new book that includes sections on who's hiring, who's expanding, plans and projections for 1988 and how to get listed on the Vancouver Stock Exchange.. This useful little book includes excerpts from the Corum report on the BC software industry. There is a section on selling software through the innovative and apparently lucrative channel of shareware. Available directly from the publisher Resolution Business Press 820-153rd Ave N.E. #C-201 Bellevue, WA USA 98007 or through local bookstores. $14.95 The directory of about 400 companies is also available in ASCII format on disk complete with addresses, type of business, brief product descriptions and their expansion plans for $49.95. A package price of book and disks together is $59.95

**Statistics Canada's 1986 Census Database for the PC.** The Conservative Government's decision to do the Census on a cost recovery basis has opened the door to new products PCensus. For the first time, a comprehensive database from a Population Census of Canada is available for use on a PC. The system puts Census data on the desk-top of the market researcher. PCensus allows you to extract demographic data for a geographically defined area, anywhere in Canada.

The system is typically used by the market researcher for analysis of site locations and trading areas. Previously, to access this type of data would have been prohibitively slow or expensive. Now with a few key strokes, comprehensive comparisons of areas are available. The system is simple enough that a small retailer, for example,



might do quick comparisons of 4 or 5 possible sights. Gut feelings can now be rationalized to the bank manager.

The data available currently is only the 2-A Database which contains characteristics on population, dwellings, households and the family. In the fall, the 2-B Database will be available. This includes more socio-economic data. Tetrad stresses that it is not possible to identify individuals from any of this data.

PCensus is not cheap and it is copy protected. The program sells for $250. Stats on BC only are $785 and more or less for other provinces depending on their size. All of Canada can be had for the paultry sum of $4655. The data is also a memory hog. Just B.C.'s data is about 2 megabytes. The company also supplies the appropriate maps at a nominal cost. At these prices, Tetrad's customers include the likes of MacDonald's restaurants and VanCity. Fortunately for small businesses, plans are under way to have the program made available through the BC Enterprise Centre in Vancouver and Business Information Centers throughout the province.

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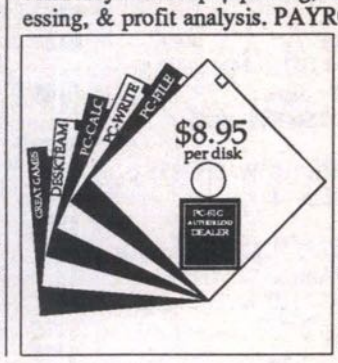
WANTED: Software authors with programs to be distributed under Shareware or to be published as a commercial package. DATA TRANSFER: Need data transferred from one format to another, call us and describe your needs.

First there was Lotus 123 and then there was dBASE III+. If you have tried them both to solve your database problems and you are still not getting what you want... try the new ADVANCED REVELATION to handle all of your data base requirements. ADVANCED REVELATION is a full function relational data base & applications development system that allows designers to develop sophisticated systems to deliver the "goods", yet simple enough to allow non-technical users to request & create their own reports & define new data fields. **Parsec Systems** specializes in developing data base systems in the new ADVANCED REVELATION. Systems range from simple name & address lists to full manufacturing systems for small manufacturers. ADVANCED REVELATION runs on stand alone IBM XT/ATs as well as on networks. For a solution to your data base problems let us do the nitty gritty programming work & you can still create new reports & fields as you need them on your own. **Call Ted Archibald at Parsec Systems 943-4416**

PARSEC SYSTEMS

**SOFTWARE FOR BUSINESS** What programs are available in SHAREWARE that can help a business? How about 100 form letters (PC-SIG #388) you can use with your word processor? Try Project Management (PC-SIG #423) using critical path method for cash flow, cost reports, Gantt charts, & precedence networks. There are database programs, spreadsheets, & templates ready to run for Lotus. Small inventory programs, mailing list programs, & sales tracking programs. The FRONT OFFICE (PC-SIG #697-699) is a control system for prospecting, sales management, sales order processing, & profit analysis. PAYROLL CANADA (SCS #155-156) will handle a complete payroll for 250 employees. MICRO-RETAILER (SCS #126,151-152) is a point-of-sale program for footware or apparel retailers. Many more available. Prices start at $7.00 per disk. *WANTED: Authors wanted to distribute their programs through SHAREWARE.* **Contact SIM-COM Services 14150 101 Ave. Surrey, B.C. V3T 4Y2 (604) 585-2326**




Did you know that your computer data is worth up to 25 times the original cost of your hardware? The back-up and off-site storage of your computer data is an issue that MUST be addressed within your organization if your are to survive an unforseen disaster. Do you know when such a disaster will strike? INFOSAVE™ addresses your personal computer back-up and storage needs. INFOSAVE ™ provides a worry-free, quick method of backing up the hard drive(s) in your Personal Computer(s) on a regularly scheduled basis, minimizing the time, effort and cost required by you to perform this tedious yet essential task.

INFO SAVE

Doing a proper job of backing-up your personal computers is usually an expensive & time-consuming job. At INFOSAVE™ Service Ltd., we care about the integrity & security of your valuable computer data. Isn't it time you did too, before it is too late? Call us for a FREE analysis.
**INFOSAVE™ 121-810 W Broadway Vancouver V5Z 4C9 (604) 875-1552**

**HORIZON SYSTEMS** was born from the idea that computer consultation & support need not require bank financing to acquire. The major obstacle facing Bob Chisholm in 1984 while computerizing his own business was the high cost of consultants. After extensive training, self instruction and expense Bob is ready to share the knowledge he has acquired. **Horizon Systems** aim is to make available to its clients an affordable system of support from the decision to computerize through software selection, to setup & training of staff. They have been installing, teaching & supporting Bedford Accounting software for over 2 years. Bob has also developed a system of customized menus which allows clients to skip the steep learning curve of DOS. This makes data backups automatic. **Horizon Systems** can also assist your small business with other programs including Lotus 123, dBase III Plus & word processing packages.
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# COMPUTER CALENDAR

## ACCOUNTING

ACCESS CENTRE 290 - 145 Chadwick, North Van 984-4671
- **Bedford Accounting** Jun 4/11 — **$180**

BARKEL BUS.SCHOOL 211 - 3030 Lincoln Ave.Coquitlam
- **Computerized Accounting** phone 464-8717

COMPUTERLAND (**V** = 1035 W Pender **Vancouver; B** = 214 4501 North Rd **Burnaby; R** = 123-4940 No. 3 Rd **Richmond**) 683-6152
- **ACCPAC GL** Jun 6, 28 V — **$180**
- **Bedford** 3 evenings Jun 16, 23 B — **$180**

COMPUTER EMPIRE TRAINING 4162 Main 872-1668
- **New Views Accounting** Call for dates — **$145**

COMPUTER PLACE 860 Burrard St, 688-2992
- **ACCPAC** June 13 — **$179**

DOPPLER'S TRAINING CENTRE 101 W. 5th 875-0261
- **Bedford Accounting** full day, Jun 14 — **$175**
- **ACCPAC** full day course,. — **$159**

McKAY 2151 Burrard St. Vanc. 736-7221 Call for start dates
- **Computerized Bookkeeping Course** 12 Weeks

PBSC TRAINING CENTRE 1350-1140 W. Pender 689-7272
- **ACCPAC General Ledger**, Jun 2 — **$175**
- **ACCPAC A/R, A/P**, Jun 28 — **$175**
- **Bedford Accounting**, Jun 20 — **$175**

PERSONAL COMPUTER TRAINING INSTITUTE 200-247 Abbot St Downtown 682-5448 12 hour courses
- **ACCPAC or Bedford Accounting** CALL — **$150**

PITMAN BUS. COLLEGE 1490 W. Broadway 738-7848
- Computer Accounting Call for start dates

PRECEPT COMPUTER CENTER 735 Clark Dr, 255-3198
- **ACCPAC** Module 1 Jun 16/17, July 4/5/6/7 — **$140**
- **ACCPAC** Module 2 Jun 20/21/23/24 — $275
- **Bedford Accounting** Jun 6/7/9/10 — $275

PRIMA TECH 207-3900 E Hastings, Burnaby, 294-4567
- **ACCPAC - A/R** Jun 5 — **$150**
- **NewVIews Accounting** June 23 & 24 — **$545**

TXL MANAGEMENT SYSTEMS Hotel Georgia 876-7117
- **New Views** 9-12 AM June 15 or July 14 — **Free**

VANCOUVER COMMUNITY COLLEGE 875-2800
- **ACCPAC G/L** — **$150**

VAN. SOFTWARE CTRE 300-1190 Melville 669-9800
- **Bedford** Jun 1, Jun 20 — **$180**

## DATABASE

ACCESS CENTRE Lonsdale Quay 984-4671
- **dBase III +** Start anytime, computer based training-selfpaced tutorials (average 20 hrs, no max.) — **$140**

COMPUTERLAND (**V** = 1035 W Pender **Vancouver; B** = 214 4501 North Rd **Burnaby; R** = 123-4940 No. 3 Rd **Richmond**) 683-6152
- **Intro to dBase III +**,Jun 9 B ,Jun 21 R — **$180**
- **dBase III+ Intermediate.** Jun 17 B — **$180**

COMPUTER PLACE 860 Burrard St, 688-2992
- **Intro dBase 111+** June 29 — **$179**
- **Intermed. dBase 111+** June 30 — **$179**

COMPUTER STATION 2130 Burrard St 732-8621
- **Intro to dBase III +**, Jun 23 — **$175**
- **Intermediate dBase III+**, Jun 5 — **$175**

DOPPLER'S TRAINING CENTRE101 W. 5th 875-0261
- **dBase III + Intro** 1 Day course. — **$175**

FIALA, BONNER 810-1112 W Pender 684-1022
- **dBase III+** 1 Jun 22 — **$175**

MICROAGE 3609 W 16th Ave, Vancouver 222-1010
- **dBase III + Part I** Jun 16 — **$175**
- **dBase III + Part II** Jun 29 — **$175**

PCTI PERSONAL COMPUTER TRAINING INSTITUTE 200-247 Abbot St Downtown 682-5448 12 hour courses
- **Reflex Plus** June 25 — **$150**

PBSC TRAINING CENTRE 1350-1140 W. Pender 689-7272
- **dBase III +**, Jun 1/13/30 — **$175**
- **dBase III + 2**, Jun 8 — **$175**
- **dBase III + 3**, Jun 24 — **$175**

PITMAN BUS. COLLEGE 1490 W. Broadway 738-7848
- **dBase III+** Call for start dates

PRECEPT LEARNING CENTER 735 Clark Dr. 255-3198
- **dBase III+ Module 1** Jun 13/14 — **$140**

PRIMA TECH 207-3900 E Hastings, Burnaby, 294-4567.
- **Database Using Clipper** Jun 30 4 wks — **$150**
- **Using dBase III+** Jun 19 — **$150**

VANCOUVER COMMUNITY COLLEGE 875-8200
- **Intro to dBase III+** Jun 23 — **$140**
- **Intermed. dBase III+** Jun 5 — **$140**
- **Using dBase III+ Module I** Jun 13/14 — **$140**
- **Using dBase III+ Module II** Jun 20/21 — **$140**
- **Using dBase** Jun 19/26 — **$150**
- **Database Using Clipper** Jun 30/Jul 7/14/21 — **$150**

VAN.SOFTWARE CENTRE 300-1190 Melville 669-9800
- **Introduction to dBASE III+** Jun 16,27 — **$180**
- **DBASE III+ Intermed.** Jun 6,23,25 — **$180**

## DESKTOP PUBLISHING

(See also the Macintosh Section for Mac DTP)

BENNDORF VERSTER 380 W 2nd Ave Van 872-8882.
- **DTP: Canon Express** Call for details. — **$25**

COASTWAY SYSTEMS TECHNOLOGY 989 West 8th Ave Vancouver 736-5039 (space limited call to reserve)
- **Ventura vs. Pagemaker** June 7,9,12,16,21,23 — **$10**
- **Intensive Ventura** 6:30-10 pm June 13,20,27 (limit 3) — **$75**

DESKTOP PUBLISHING TRAINING CENTRE 400-1190 Melville St., 681-2535. Call for June Schedule
- **Ventura, Pagemaker and Spellbinder**

DOPPLER TRAINING CTRE 101 W. 5th, Van. 875-0261
- **Ventura** Jun 16 & 17 — **$375**
- **Pagemaker** Jun 23 & 24 — **$375**

FIALA, BONNER & ASSOCIATES Van. 684-1022
- **Ventura** Jun 5 — **$250**

McKAY TECHNICAL INSTITUTE 2151 Burrard St, Vanc. 736-7221 Call for details
- **Desktop Publishing/Graphic Arts** 12 weeks

MICROAGE LEARNING CTRE 3609 W 16th 222-1010
- **Pagemaker** — **$175**

PBSC TRAINING CTRE 1350-1140 W. Pender 689-7272
- **PC Pagemaker** (call for details) — **$175**
- **Ventura** — **$175**

PRECEPT LEARNING CENTRE 735 Clark Dr 255-3198
- **Using Ventura** Jun 2/3, Jun 20/22/27/29 — **$190**
- **Intro to Desktop Publishing** Jun 27/28 — **$130**
- **Pagemaker** Jun 13/14 — **$190**

PRIMA TECH 207 - 3900 E. Hastings St. Burnaby 294-4567
- **DTP using Ventura July 4** — **$150**

SIMON FRASER UNIVERSITY Downtown 687-4255
- **DTP: Advanced Workshop in Ventura** Jun 10 — **$160**
- **DTP - Alternative Approaches** Jun 4 — **$160**

VANCOUVER ELECTRONIC PUBLISHING ASSOC
**BC Club, 750 Pacific Blvd S., Vancouver, 731-5887**
- **General Meeting** First Monday 7 PM — **Free**
- **Mac Pagemaker SIG** Nelson Reust 683-1599 2nd Wed of month June: Interleaf 7-9 p.m. at Computerland, 1035 W. Pender — **Free**

VANCOUVER COMMUNITY COLLEGE 875-8200
- **Intro. to DTP** Jun 27/28 2 sessions — **$130**
- **DTP: Ventura** Jun 2/3 2 sess. Jun 20-29 4 sess. — **$190**
- **DTP with Pagemaker** Jun 13/14 2 sess — **$190**
- **Using Ventura** Jun 13-July 4 — **$150**

VANCOUVER DESKTOP PUBLISHING CENTRE Ltd 1150 Homer St 681-9161 Steve Osborne, Roedy Green
- **Ventura Junior Level** — **$159**
- **Ventura Senior Level** — **$159**
- **Desktop Design Clinics** — **$69**
- **Ventura Publisher** - Call for Dates

VAN. SOFTWARE CTRE 300-1190 Melville St. 669-9800
- **Intro to PageMaker** Jun 14/15 — **$350**
- **Advanced PageMaker** Jun 9/30 — **$180**
- **Intro to Ventura** Jun 6/7, 22/23 — **$350**

## GENERAL INTEREST

**APPLE ZOO** Displaying all types of Apple computers, games, educational software, petting zoo for kids, Jun 25. Simon Fraser Univ. Rm. MPX-8620. Call Bert 984-4090 for details.

**DOUGLAS COLLEGE COMPUTER WEEKS** June 6-18 Intro and advanced courses Info 520-5479 Register: 520-5472

**MICROAGE** 3609 West 16th Ave, Vanc. 222-1010
- **Autocad** June 2,4 — **$175**
- **Intermed. Autocad** Jun 13,15 — **$175**
- **Customizing Autocad** Jun 6,7 — **$175**

**PRODUCT PROFILE for Professional Hi-Tech Electronics** Trade Show June 8/9 PNE 10-6 pm Exposition and Seminars (416) 624-8100

**Vancouver Enterprise Forum** Discovery Theatre, EXPO Site 430-3533 Tues. Jun 14 $12.00 per person **Soft-Set Technologies Ltd.** Buffet 5:30-7:00 pm in Theatre Mezzanine, Forum 7:00 pm

**Vancouver School Board** 736-7241
- C-64 Junior Word Processing — $65
- C-64 Keyboarding and Word Processing — $65
- C-64 Computer Awareness — $65
- C-64 Problem Solving Computing — $65
- C-64 Writing Using Word Processing and DTP — $65
- C-64 Intro to Spreadsheet and Data Base Applications — $65
- C-64 Creative Computing — $65
- C-64 Computer Graphics & Animation Programming — $65
- Apple: Publish a Book on the Word Processor — $65
- Apple: The Word Processor & Mystery Writing — $65

## INTEGRATED SOFTWARE

DRAKE PROD. CTRE Suite 100 - 1111 Melville 669-8789
- **Symphony Spreadsheet & Graph** Jun 27 — **$175**
- **Symphony Database** Jun 23 — **$175**

PBSC TRAINING CTRE 1350-1140 W. Pender St 689-7272
- **Framework I** Jun 24 — **$175**
- **Symphony I** Jun 14 — **$175**
- **Symphony II** Jun 10 — **$175**

PERSONAL COMPUTER TRAINING INSTITUTE 200-247 Abbot St Van 682-5448 Call for schedule
- **Symphony** — **$150**
- **Framework II** — **$150**

VAN. SOFTWARE CTRE 300-1190 Melville 669-9800
- **Introduction to Framework II** Jun 1,14,30 — **$180**
- **Framework II Intermediate** Jun 8,21 — **$180**

## LOCAL AREA NETWORKS

DRAKE PROD.CTRE Suite 100 - 1111 Melville 669-8789
- **Novell System Manager Course** 2 day Jun 2 & 3 — **$415**

## MACINTOSH

ADVANTAGE COMPUTERS Suite 1760 505 Burrard St.685-MACS A.M. 8:30 - 12:00 a.m.; P.M. 1:00 - 4:30 p.m.
- **Intro to Mac.**Jun 7,16,24 — **$80**
- **Intermed Mac** Jun 13,27. — **$80**
- **Intro to PageMaker** Jun 9,27 — **$80**
- **Intermed PageMaker** Jun 2,20,30 — **$150**
- **Intro to Microsoft Works** Jun 13 — **$80**
- **Intro to Microsoft Word** Jun 9,16,24 — **$80**
- **Intermed Microsoft Word** Jun 3,15,21 — **$150**
- **Intro to Microsoft Excel** Jun 17. — **$80**
- **Intro to Hypercard** June 1,29 — **$80**
- **Macintosh Networking Jun 22** — **$150**

COMPUTERLAND (**V** = 1035 W Pender **Vancouver; B** = 214-4501 North Rd **Burnaby; R** = 123-4940 No.3 Rd **Richmond**) 683-6152
- **Intro Pagemaker** Jun 1 V, Jun 20 V — **$180**
- **Macintosh Pagemaker Interm.**Jun 16 V — **$180**
- **Excel Intro (Mac)** Jun 14 V, Jun 23 V — **$180**
- **Excel Interm(Mac)** Jun 7 V — **$180**
- **Macintosh Basic Skills** Jun 8 V, Jun 23 V — **$180**
- **Intro Word (MAC)** Jun15 V, 29 V — **$180**
- **Interm Word (MAC)** Jun 10 V, 20 V — **$180**

FOLKSTONE DESIGN INC. Box 44, Grantham's Landing, B.C. V0N 1X0 986-8060 or 886-4502 (Courses held Downtown Van)
- **Microsoft Excel Basics** July 9 — **$175**
- **Aldus Pagemaker Basics** Jun 25 — **$175**
- **Microsoft Excel,** — **$175**

SOFTSHELL 4692 Quebec Street, Vanc. 876-5790
- **HyperTalk Scripts** Jun 18, Byte Shop — **$130**
- **Excel Tips** June 4 , 9:00 - 4:00 Byte Shop — **$150**

## OS/2

COMPUTER PLACE 860 Burrard St, 688-2992
- **Introduction to OS/2** June 2 — **$179**

## PROGRAMMING & DEVELOPMENT

BCIT Full Time 432-8419, Part Time: 434-1610
- **Assembler I (IBM Mainframe)** 6 Wks July 5 — **$167**
- **Assembler II (IBM Mainframe)** 6 wks July 6 — **$167**
- **Assembler (IBM PC) I** 6 wks Tues/Thurs July 5 — **$167**
- **Basic (IBM PC) 1** 6 wks Mon/Wed July 6 — **$167**
- **Basic I** 6 wks Tues/Thurs July 5 — **$139**
- **Cobol-Level I** 6 wks Mon/Wed July 6 — **$139**
- **Cobol-Level II** 6 wks Tues/Thurs July 5 — **$139**
- **Pascal** 6 wks Mon/Wed July 6 — **$167**
- **PL/1 Level I** 6 wks Tues/Thurs July 5 — **$139**

COMPUCOLLEGE Vancouver 682-6600, Burnaby 435 2424, Richmond 273-0373. Call for starting dates. 480 hours full time diploma courses:
- **Computer Programming & Systems Analysis**
- **Microcomputer Electronic Technology**

DOPPLER 101 W 5th Ave, 875-0212
- **dBase III + Intro** Jun 2, July 7 — **$175**

PRIMA TECH 207-3900 E Hastings, Burnaby, 294-4567
- **Adv. Turbo Pascal** 4 Wks 7-10 PM — **$150**
- **Prolog** 4 Wks 7-10 PM — **$150**
- **Adv. Turbo C** 4 Wks 7-10 PM — **$150**

## SPREADSHEETS

ACCESS CENTRE Lonsdale Quay (N. Van Seabus Entrance) 984-4671. Start anytime, computer based training-self paced tutorials
- **Basic Skills** (average 12 hrs) — **$125**
- **WordPerfect, MSWord, DisplayWrite, Multimate** — **$140**
- **Spreadsheets: Lotus 123** (Average 20 hours) — **$140**
- **Database: dBase III+** — **$140**

BCIT Full Time Registration 432-8419, Part Time: 434-1610
- **Business Applications (Lotus)** 6 wks July 5 — **$167**

**COMPUCOLLEGE** Vancouver 682-6600, Burnaby 435-2424, Richmond 273-0373. Call for starting dates. 480 hours full time diploma course:
- **Microcomputer business applications**

COMPUTER PLACE 860 Burrard, 688-2992
- **Intro Lotus 123** June 8 — **$179**
- **Intermed. Lotus 123** June 17,21 — **$179**
- **Advanced Lotus 123** June 22 — **$179**

COMPUTERLAND (**V** = 1035 W Pender **Vancouver; B** = 214 4501 North Rd **Burnaby; R** = 123-4940 No. 3 Rd **Richmond**) 683-6152
- **Lotus 123 Intro** Jun 7 **V**, Jun 15 **B**, Jun 20 **V**, Jun 30 **R** — **$180**
- **Lotus 123 Interm** Jun 10 **V**, Jun 22 **R** — **$180**
- **Lotus 123 Adv.**Jun 23 **R** — **$180**

COMPUTER STATION2130 Burrard St 732-8621
- **Advanced Lotus 123** — **$175**
- **Fast Track Lotus 123** Jun 9/10, 20/21,July 5/6 — **$325**
- **Intro to Lotus 123,** — **$175**

# COMPUTER CALENDAR

**Intermediate Lotus 123,** $175
DOPPLER 101 W. 5th, Vancouver 875-0261,
**Lotus 123** Intro Jun 7 $175
DRAKE PROD. CTRE Suite 100 - 1111 Melville 669-8789
**Intro Lotus 123** 1 day course Jun 7,20,29 $175
**Lotus 123 Advanced** 1 day Jun 6,28 $175
FIALA, BONNER 810-1112 W Pender Vancouver, 684-1022,
**Lotus 123 Level 1** Jun 3/20/30
**Lotus 123 Level 2** Jun 14/24 $175
MICROAGE 3609 W 16th Ave, Vancouver 222-1010
**Lotus 123 Part I** Jun 13, 14 $175
**Lotus 123 Part II** Jun 21 $175
**Lotus 123 Advanced** Jun 30 $175
PBSC TRAINING CENTRE 1350-1140 W. Pender 689-7272
**Lotus 123** Jun 3, 20 $175
**Lotus 123 level 2,** Jun 15 $175
**Lotus 123 Advanced Micros** Jun 22 $175
**Lotus for Executives** Jun 11 $175
**Supercalc 4, Level 1** Jun 21 $175
**Supercalc 4, Level 2** Jun 30 $175
**Symphony Level 1** Jun 14 $175
**Symphony Level 2** Jun 10 $175
PERSONAL COMPUTER TRAINING INSTITUTE
200-247 Abbot St Van. 682-5448 12 hour courses
**Lotus 123 II** $150
**Lotus 123 Macros** $150
PITMAN BUS. COLLEGE 1490 W. Broadway 738-7848
**Integrated Software - Lotus 123** Call for start dates
PRECEPT LEARNING CENTER 735 Clark Dr. 255-3198
**Lotus 123** Jun 27/28 $140
**Advanced Lotus 123 (Macros)** July 7/8 $140
PRIMA TECH 207-3900 E Hastings, 294-4567
**Lotus Macros** Jun 4 $105
**Lotus Management & Graphs** July 9. $105
**Lotus 123 Advanced Wed.** Jun 1/8 $180
SIMON FRASER UNIVERSITY Continuing Ed. 291-4565
**MSWord for PC's,** Jun 11 $125
VANCOUVER COMMUNITY COLLEGE 875-8200
**Lotus 123 Spreadsheets & Graphs** Jun 25 $115
**Spreadsheets (Lotus 123)** Jun 27/28 $140
**Using Lotus 123** Jun 14-July 5 $150
**Intro to Lotus 123** Starting Jun 1/11/20 $140
**Intermediate Lotus** Starting Jun 12/21 $140
VAN. SOFTWARE CTRE 300-1190 Melville 669-9800
**Intro to Lotus 123** Jun 14 $180
**Lotus Intermed.** Jun 10, 22 $180

## TELECOMMUNICATIONS

PBSC TRAINING CENTRE 1350-1140 W. Pender St 689-7272
**Crosstalk** (call for starting dates) $175
VANCOUVER DESKTOP PUBLISHING CENTRE Ltd
1150 Homer St 681-9161, Stephen Osborne, Roedy Green
**Ventura Publisher Call for dates** $129

## USER GROUPS

**Amiga User Group Meetings** (PaNorAma), Sunset Community Centre(404 E. 51st at Fraser) Dave Allen 270-0064.
**General Meetings** 2nd Wed each month 7:30 pm
**Programmers:** 4th Wed each month 7:30 pm
**Apple II User Group** Meeting BC Apple Society, Burnaby Rugby Club, Kiyo Masuda 437-9935
**Apple III SIG** Monthly Kiyo Masuda 437-9935
**Beaver Valley Commodore Club** Meets first Tues every month at Montrose School Library. Call John Vink 367-6426
**B.C. Unix User's Group** meets 4 times a year. Call George Pajari 925-2555, 2545 Queens Ave, West Van V7V 2Y9.
**Clipper Developers Assoication** 1st Mon SFU 873-0747
**Commodore Club** 1st Tues Sunset Comm Centre 738-3311
**DPMA** 324-5511 Video "The Sky's the Limit (Part 2) Prof. Development Jun 21, 5:45 p.m. Sponsored by VCC
**Kaypro User Group/ Vancouver Portable Computer Club** 3rd Monday at Kaypro in Richmond (CP/M) 278-5776
**Mac User Group Meeting BC Apple Society,** WCB Building, 6951 Westminster Hwy (Kiyo Masuda) 437-9935.
**Mainland Mac** Jun 8 7:00 PM Rm 115 Kwantlen College, Surrey, 574-3813, Ron Haidenger Jun 9 Copy Session
**Maple Ridge Computer User Group** 467-2647 M.R. Sr. Secondary School 7:30 PM, **Free**
**NEC APC Users Group** Bi-monthly Lee 980-5825
**North American Amstrad User's Group.** For newsletter, membership application send S. A. S.E. to: 65-13880 - 74th Ave, Surrey V3W 7E6 PHONE: 433-5121 Helen Levasseur
**Novell Netware Users** Peter Whitelaw 669-8789 monthly
**Port Coquitlam Computer Users Group** 1st and 3rd Tuesday Poco Rec Centre 2100 Wilson Ave 942-4286
**Tandy 1000+ Club** Len Boscoe 574-5419
**The New Apple Alliance** May Chow 435-7609 last Saturday of month in Kitsilano Neighbourhood House.
**TI Computer Club** Phone Keith at 261-2739
**Trace (Richmond Atari Club)** Thompson Comm. Centre Linus Lane Richmond, 272-5789 1st & 2nd Monday 7:30-9:30
**Vancouver Netware User's Group** Les Lebbrant 275-2829. Meets 1st Mon of the month.
**Vancouver PC Users Group** Planetarium 438-6009, $20/year membership. 7:30 pm 2nd Thurs
**Vantari** 34-3046 Coast Meridian, Pt. Coquitlam B.C. Judy Hercus 873-1941 Hastings Comm. Ctr 3096 E Hastings, (2nd Wed :Jun 8, July 13, Aug 10.7:30-10:30 pm) XL/XE & ST
**Wang System User Association** 736-8841 ext 227 J.P. Doiron
**99 Users Group** Meets every Thursday 7-10 p.m. at Cameron Rec Centre, Burnaby. Call Ron at 522-2598. 1st Thurs Games, 2nd Thurs General 3rd Thurs Tutorials 4th Thurs Copying Prog.

## USING YOUR PC

ACCESS CENTRE Londsdale Quay 984-4671
**Basic Operating Skills** Start anytime, computer based training-self paced tutorials (average12 hrs, no max.) $125
BCIT Full Time Registration 432-8419, Part Time: 434-1610
**Computing for the Timid** 4 wks Mon, Jun 13 $65
**Computers in Business** 6 wks Tues/Thurs July 5 $139
**Computer Systems-Intro I** 6 wks Mon/Wed July 6 $139
**Computer Systems-Intro II** 6 wks July 5 $139
**Microcomputer Systems I** 4 wks Mon/Fri Jun 6 $399
**Microcomputer Systems II** 4 wks Mon/Fri July 4 $399
**Data Processing Intro** 1 wk Jun 13 $139
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# Egonomics: Where Has All the Increased Productivity Gone?

The advent of Office Automation has brought with it the reduction and even the elimination of much of the joint and muscle movement required for our physical health and well-being. Jobs like filing, document handling, copy writing, layout, paste up, drafting, copy transfer, even mail and meetings can now be done from one static position—seated in front of your computer.

Vendors promoting the "efficiency" and "time savings" of office automation take little notice of the fact that the slack has been taken up by a rise in "on premises absenteeism" while many managers wonder when the "increased productivity" they were expecting will materialize. Along with the fact that our standards for presentations, customer-related documents and simple office memos have dramatically increased, employees and their unions are demanding regular time segments away from the "discomforts of the VDT", the very opposite result of what we would expect from a tool that was sold us to make our jobs "easier".

Onto this scene appear many self-proclaimed "ergonomics experts" and "ergonomics engineers" who provide medicine-show style, mass-produced cures for VDT-related ills. Still, that elusive productivity increase escapes our workplaces. How often recently have you telephoned or called on a business associate only to hear that "he/she has 'slipped away' from his/her desk for a moment?"

It has been estimated that on average 15-20 minutes per hour are spent by operators "standing around" or otherwise "not working" in an attempt to get relief from the "discomforts of the VDT environment". Physicians warn us to work no longer than four hours at a stretch at a VDT terminal. With this kind of data abounding, "productivity" seems to be ever more like the proverbial pot of gold at the end of the rainbow.

**Is ERGONOMICS a Myth?**

Some managers use the fact that "ergonomics" has become over used, almost to the point of meaninglessness, as an excuse to ignore the job-related health problems that do in fact plague terminal operators. And some employees feel that somehow it is "their problem":, i.e., there is something wrong with them because they are suffering while others seem insensitive to any work environment they are placed in. Robert Lockhart, Principal of Lockhart Risk Management of Vancouver, points out that the degree of discomfort, fatigue and tension varies from person to person and job to job. How data is being processed, whether the job involves data entry from hard copy or retrieving data from the computer, age and eyesight variations, height and weight differences, and physical disabilities are among the many factors that affect each individual's response to a work environment.

Since "discomfort" is the reason given for "on premises absenteeism", as well as for union and employee demands for breaks from VDT work, it seems obvious that a serious look for the sources of the problems should be undertaken, especially by any business now involved in automating their office. This one quarter to one third of every person-day that is non-productive should encourage managers to give serious thought and budget consideration towards solving VDT-related ills.

**What Kind of Solutions are Appropriate?**

Proper seating is the essential and basic starting point for a comfortable office environment, but a height-adjustable chair is not the total solution. Many non-adjustable desks force shorter people to raise their chairs, causing pressure under the front of the thigh when they sit back. This forces them to sit forward, away from the necessary back support. Taller persons, on the other hand must lower their chairs to avoid slouching. This raises their knees above the level of their buttocks, causing all their weight to rest on the back of the seat, resulting in discomfort and fatigue.

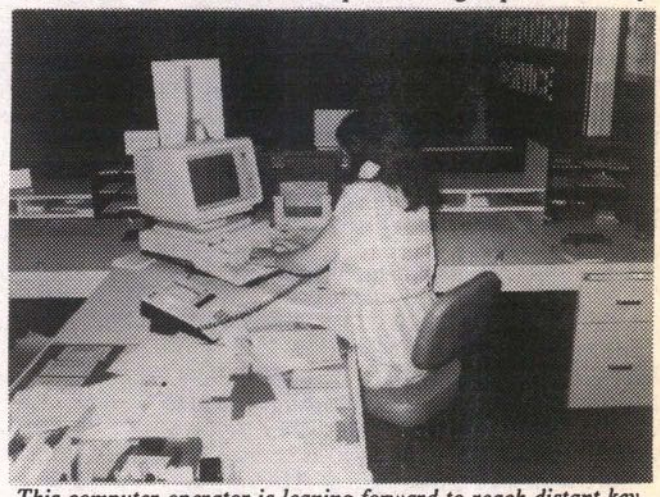
Properly adjusting their chairs, however, causes many users to need to raise their arms to a keyboard that is then too high, creating tension in the muscles across the top of the shoulders and the base of the neck, a condition which quickly results in pain and subsequent "pain-avoidance behaviors". Our bodies are designed for movement; our joints are lubricated and kept in good working order by movement. Stress and fatigue result from working for prolonged periods in one static position, no matter how comfortable. How much worse the side-effects then when uncomfortable positions must be maintained for long periods. In Europe such things as height-adjustable desks and worktables have been common since long before the advent of computers, and, in fact, are widespread regardless of whether the employee types, writes, or uses a VDT terminal at his/her job.

Robert Lockhart points out the critical importance of proper body alignment. Problems will result from positions that cause improper alignment, such as often occur when computers are used on surfaces with no leg room or by twisting resulting from awkward sharing of equipment. Continual forced movement such as that of the neck in moving from CRT to hard copy and also improper neck angle can cause strain and tension in the shoulder and neck muscles resulting in muscle spasms and headaches. Many sources agree that improper head angle and too much up-and-down and side-to-side head movement cause most of the headaches often thought to be caused by the VDT itself. These types of discomforts can cause other decreases in productivity such as errors and oversights as well as fatigue. Some people do manage to actually work at their jobs while suffering from backaches and other pain but they are likely operating at only 40 to 60 % capacity.

Although it has often been said that the VDT is the source of the eyestrain, in many jobs actual eye contact with the terminal is very limited, for example, in keying alphanumeric combinations most of the time is spent reading source documents and looking at the keyboard. Eyestrain might result from the operator's tilting the monitor to avoid reflected glare, to an angle which results in image distortion and subsequent, if unconscious, difficulty in reading the image. Some operators assume uncomfortable postures to try to avoid glare. Eyestrain can result from trying to compensate for the distortion of the image caused by a dirty mesh filter. Windows without curtains should never be directly in front of or behind the operator, and overhead lights should be adjusted to avoid reflection. Placing copyholder and VDT on the same plane as well as having the copy and VDT at a proper focal distance could reduce eyestrain problems.

**Appropriate Technology**

It is common for businesses to hire Designers for their VDT areas as well as the rest of their office, often ones who have no experience in ergonomics and VDT-related problems, and whose specialty is aesthetics not operator comfort. Robert Lockhart considers that a proper approach to an ergonomic workplace involves a team effort. Ergonomics is an interdisciplinary science involving biomechanics, psychology, engineering, and other specialties. Lockhart feels that no one person knows enough to carry out a full evaluation of all potential areas of stress. To address the basic biomechanical concerns Lockhart places strong emphasis on "easy



*This computer operator is leaning forward to reach distant keyboard. Her keyboard height & telephone position force her raised shoulders and corresponding tension Photo: Robert Lockhart*

adjustability". *Adjustability* because each person's physiology and needs are different, and the ways in which one person interacts with the machine differs from another's. Furniture that is designed to be adaptable to a number of different people's needs as well as to a number of different postures throughout the day to allow easy movement is most desirable. Changes of position are of primary importance if we routinely sit in a more or less static position for more than about two hours a day. Otherwise, by maintaining ourselves in uncomfortable positions we are likely to suffer from such physical problems as backaches, headaches, and neck and shoulder pain, which over a period of time can become debilitating.

Training is also important. Staff should be familiar with the proper use of the equipment and software and should be shown how to deal with the natural physical stresses of working in this new environment. Included should be training in on-the-job exercises to relieve built-up muscle tension. Regular changes in sitting position should be promoted.

Ulricka Wallersteiner, a West Vancouver Ergonomist, Principal of her own company, Ergo Systems Canada Inc., and co-author of a soon-to be published book entitled, Office E*rgonomics: Humanizing the Office* (Southwestern), shares the opinion that a team approach is necessary and stresses the importance of having an ergonomist on design teams, not only for office environments but also in furniture design itself.

Many alternatives already exist in workstations, from modular units with height adjustable sections, to compact mobile units, some having pull-out keyboard and workspace areas. To regain more workspace such products as monitor arms, CPU floor stands and various types of copyholders are readily available. Space-saving printer stands and printout catchers can clear the workspace of even more "VDT clutter".

One area that is often ignored is printer noise. Laser, ink-jet, and thermal printers are quiet alternative printer choices or one can muffle the noise of daisywheel, matrix, and other noisy types with acoustical printer covers. Standards for printer covers, however, are lacking, as is a clear understanding of the acoustic principles that bring about noise reduction.

The logical conclusion is that the cost of an ergonomically designed workplace, including appropriate furniture, should be planned for and considered at the outset as part of the cost of office automation, budgeted for and not taken as an afterthought. In other words, the Human Hardware, and the Human Software are every bit as important as the machine hardware and the machine software.

*Ingrid Harris is a graduate of Queen's University and President of Ingrid Harris Dataware, supplier of corporate and office environments.*

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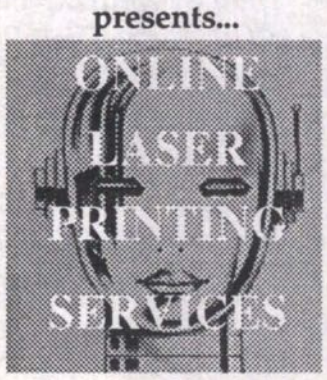


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# *A NOTE TO OUR VALUED CUSTOMERS...*

*In order to serve you better we have changed our corporate name and location...*

***Coast Computers** is now **Coastway System Technology** located at **989 West 8th Avenue.** Some things that haven't changed are the recognition by our customers and collegues as being one of the leading microcomputer specialists in desktop publishing and office automation in Greater Vancouver. You can still rely on our knowledgable sales team, technical support and software instructors as nothing short of first class. To further our services to you we have expanded our expertise in a variety of state of the art high tech office automation systems. Also, you can still count on the guaranteed lowest prices available.*

NEW

## *$ 1618.88*

***DATATRAIN XT With ROLAND Printer***

- *Roland 1012 with cable*
- *Datatrain computer*
- *Turbo 8088 8 MHz processor*
- *640K RAM Memory*
- *Dual Floppies*
- *ATI Graphic Solution Video Card*
- *Datatrain Monitor*
- *Serial and Parallel Ports*
- *Keyboard*
- *One Year Warranty*
- *Introductory Training*

## *$ 795.00*

***ALDUS SNAPSHOT***

NEW

- *State-of-the-Art Electronic Photography*
- *Image capturing via video camera, VCR, Video Disk Player, Camcorder and other video sources*
- *integrated for Desktop Publishing*
- *Turn Photographs into line art*
- *Total control over picture editing*
- *256 shades of grey control*
- *Multiple Special Effects*

***COME SEE IT IN ACTION!***

WOW

## *$ 3668.88*

***The AT Of Choice: KAYPRO 286i***

- *Leading Brand Name*
- *Roland 1012 with cable*
- *Super fast 12 MHz 80286 processor*
- *1 Mb RAM Memory*
- *1.2 Mb Floppy Drive*
- *40 Mb Hard Disk Drive*
- *Datatrain Monitor*
- *Serial and Parallel Ports*
- *Enhanced Keyboard*
- *One Year Warranty*
- *Introdructory Training*

## *$ 848.00*

***PAGEMAKER VERSION 3.0***

NEW

- *"What you see is what you get" display*
- *New user defined Stylesheets*
- *20 complete page designs for business documents*
- *Image controls for brightness, contract and special effects*
- *Colour support*
- *Custom Text Wrap for irregularly shaped graphics*
- *Automatic text flow through an entire document*

**Coastway System Technology 989 West 8th Avenue Vancouver, B.C**
**736-5039**